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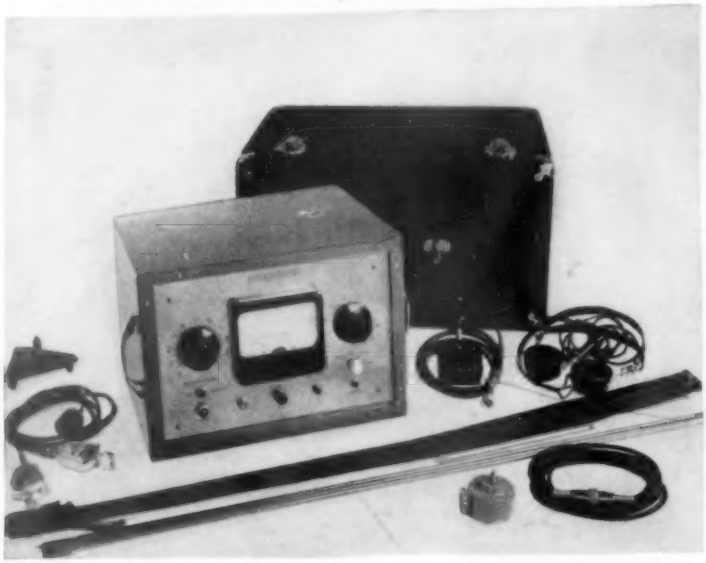
AN UNBEATABLE COMBINATION for every Water Works Department

WATER LEAK SURVEY INSTRUMENT



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Locates exact position of pipe leak.

Gives visual answer of where to dig or break pavement when a leak appears on the surface.

Solves the problem of "unaccounted-for" water, by locating sub-surface leaks.

Determines the presence and location of a pipe-line leak without contact with the pipe.

Reduces operating losses — Increases Net Revenue.

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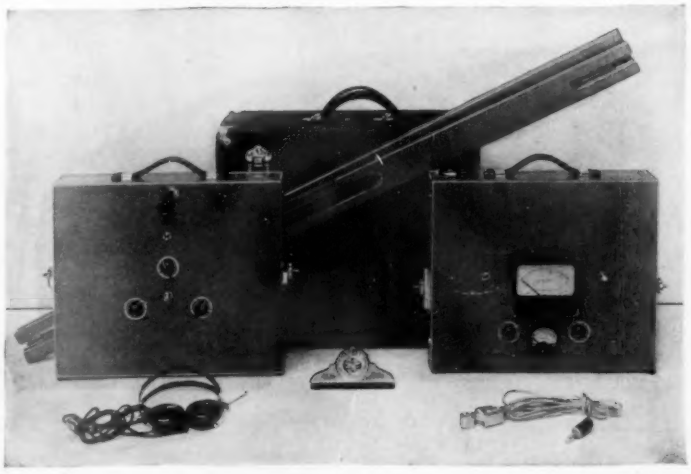

A precision outfit consisting of transmitter and receiver and necessary accessory equipment for tracing underground pipe-line systems. Takes the guess out of locating mains or depth they are buried. Equally useful for locating dead ends and valves.

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Planning for Victory and Peace

"IN a very real sense the clarification of the objectives in the onward march of freedom-loving people is an essential of our war effort. . . .

"We must fight the despotisms and all their forces, not only with greater force, but with ideas and faith. We must develop and hold out to the enslaved people, now under the heel of the dictators, a better way of life than we or they have had."

These words by Charles E. Merriam, Vice-Chairman of the National Resources Planning Board, at the opening session of the National Conference on Planning, held in Indianapolis, May 25-27, helped to set the high standard of papers and discussions which characterized the three days of this well-attended gathering.

Local Governments Must Play Their Part

Emphasizing the fact that we are going forward with restored confidence in the democracy and liberty which underlie our civilization, Dr. Merriam urged that local governments play their part not only in the winning of the war, but in helping to direct the changes that will inevitably follow victory. On the subject of post-war redevelopment the speaker said in part:

"Each city and county can contribute to post-war reconstruction by starting now with the preparation of plans for the material development and service activities which are needed to make it a prosperous community. The National Resources Planning Board therefore urges the appointment of official planning agencies or groups, where these do not exist, to undertake this task. Through regional and state planning agencies, and through the field offices of the Board, assistance can be had in relating local planning activities to state, regional, and national programs. Special advice can be obtained from various federal and state agencies concerned with technical problems. It is hoped that each local area will prepare plans for post-war developments, including: (1) reconstruction of blighted areas and new housing; (2) highways, airports, rail and bus terminal facilities; (3) industrial development; (4) conservation and improved use of land; and (5) health, educational and recreational facilities, and services."

When Is the Time To Plan?

Answering those who contend that not until the end of the war should we begin to plan for post-war readjustments, Dr. Merriam said:

"To wait until the war is over will be to wait until it is too late. When the war ends, 56 billions of war expenditure must be diverted into peace channels; when the war ends, 30 million war workers must be brought back again to tasks of peace. Great industries must be reorganized and reconverted. Many communities with war industries must be reorganized. Vast dislocations of men, materials, capital, must be resettled.

"Of course the claims of men and materials for victory should and must have priority, but there is still room and need for careful preconsideration of the problems that are certain to come with peace, before the armistice brings the battling to a close. Labor, business, agriculture instinctively recognize this as true and begin to make their preparations. All countries in the world recognize this and are making their various kinds of plans for the after-the-war period.

"Post-war preparation is not Utopian planning. The real Utopians are those who refuse to recognize the necessity of taking thought in advance, who foolishly believe that somehow the 30 million workers will automatically fit into some perfect pattern of employment, in some great miracle of performance. . . .

"Let planners make no mistake about the nature of this titanic world-enveloping struggle. It is not merely a war of words, or of empires, but a fundamental battle over the ideals of civilization. The many and the few are again at grips, determining whether an aristocratic or a democratic fraternal view of life shall prevail. Free government is at the bar and on the firing line. . . .

"In all this groping of the disinherited for fuller recognition, we must plan for the future—and we must plan now."

The Need for Audacity

Following Dr. Merriam's keynote talk at this National Conference on Planning came another challenging plea for post-war planning—this by James J. Harrison, Chairman of the Arkansas State Planning Board. The urgent need for imagination, courage, and driving power in looking toward the future was stressed by Mr. Harrison:

"The decade ahead is not one to reward half-hearted men nor half-baked ideas. It will require our total audacity, devotion, and staying power if we justify the bitter price paid by gallant men for our freedom to plan and build a society worthy of their sacrifices.

"The test of integrity automatically sets up certain minimum standards by which to gauge public acceptance of our plans for a post-war America. The first of these standards is utility. Our citizens are not going to be interested in building pyramids. And it will be difficult to harness young men, who for months have been rising up on wings as eagles, to dull, unimaginative boon-doggles, the sole justification of which is to provide meal tickets for the unemployed. Our programs for full employment must have an eye to the quality of that employment and to the public usefulness and need of the work done.

"In the hard years ahead of us we must fight without ceasing for every man's right to a job at which he can earn an honest wage and educate his children. Idleness can be more destructive than war. It not only destroys God-given energies, it destroys the spirits of men. The man-hours of productive labor lost during the depression of the thirties cost the nation more than the war bill will likely run. Following the war, idleness will again be the arch enemy of the nation, and our people will not want to fight this new war with rakes and wheelbarrows.

"The first obligation of planners, public and private, at all levels from hemispheric to local bodies, is to propose useful and needed programs. A decent respect for the dignity of labor and the worthiness of human personality places upon us the obligation to meet this hard test. We dare not fail it. . . .

A Moral Equivalent for War

"How shall we overcome the emotional let-down, the war-weariness that follows war? Where shall we find a moral equivalent for war? The answer is suggested in a sentence from the mind of Horace Bushnell, now carved above the beautiful Memorial Auditorium in Hartford which bears his name:

" 'Life is always insipid to those who have no great works in hand nor lofty aims to elevate their feelings.'

"Herein lies the critical test of all our future planning. We have all the raw materials out of which to build a good society. This generation can outlaw war. Profit is going out of war as it went out of slavery. It is not cynicism but the most practical realism to point out that when there is no longer any possible profit, the saints, the crusaders, the idealists can finish the job of outlawing war as they did slavery. . . .

"Let the moral philosophers remind us again that the only unexplored area for adventure is in the realm of doing good to men and not evil. There are no new sins. Babylon knew everything our most dissolute moderns know. If you want to get into unexplored country it is in the realm of goodness. Hitler and other Axis gangsters are reworking the old, dark, abysmal shafts of man's depravity. We must stake out a new claim. . . . In the words of Henry Van Dyke:

" 'The glory of the Present is to make the Future free,

"We love our land for what she is and what she is to be.' "

Keynotes from the National Conference on Planning

• • • —

A Message of Confidence

THE war has brought many changes to the Bell System. The nation needed telephone facilities in new places. It needed more facilities in the usual places. It needed all facilities in a hurry.

Shortages of essential materials brought new problems and new achievements in research and in manufacturing. Telephone calls increased about ten million a day.

Yet all this has been done without great change in your telephone service. Millions of subscribers have felt no difference. The record as a whole has been good. That is the way it should be and the Bell System aims to keep it that way.

But when war needs delay your call, when you can't get just the service or equipment you need, let's put the blame right where it belongs — on the war.

BELL TELEPHONE SYSTEM

SERVICE TO THE NATION IN PEACE AND WAR

Our Municipal Notebook

Building Wardens Control by Intercommunicating System

IN the event of an air raid alert signal, the chief warden of a certain large building can call the 40 sector wardens to attention without disturbing the employees in any of the sectors. Using an interoffice communicating system, he can also broadcast instructions and start and direct orderly movement, with the aid of the sector wardens, toward the prearranged safety area for each sector. His sustained broadcast to all the employees over the communication system backs up the activities of the sector warden on each scene to prevent panic during the movement. The two-way arrangement also permits any sector warden to report impending difficulty so that corrective measures can be taken at once. Remote stations in the smaller areas are desk-type, while trumpet models serve the larger areas. Each is designed to permit the sector wardens to talk back to the chief warden at some distance from the station itself. As recommended by the Office of Civilian Defense, the equipment is separate from the regular telephone service. The system, manufactured by Executone, Inc., 415 Lexington Ave., New York City, can be converted to normal use.

Does a Radio Car Need Two Officers?

THE AMERICAN CITY has been asked why so many prowl cars contain two police officers in the daytime. All these cars are equipped with police radio, usually two-way, permitting back-and-forth talk. In the event of trouble, other cars can be summoned quickly. Night, of course, has hazards of its own, and possibly two officers per car are needed then. Are they essential in the daytime? THE AMERICAN CITY would be glad to have readers answer.

An Air Raid by Phonograph

PLAYING a phonograph record of an actual air raid featured a lecture on air raids and blackouts in England by Davis M. DeBard of Stone & Webster Service Corp., at the April 24 meeting of the Illuminating Engineering Society in New York. The phonograph had been placed in a shelter, with the recording horns out in the street. The General Electric auditorium, in which the meeting was held, was darkened during the "raid."

The first sounds were of the sirens of London. They were not harsh or raucous, but they were unmistakable. They meant only one thing—air raid. Soon was heard the drone of the war planes and the crash and thunder of anti-aircraft fire. Then the whistle of descending bombs, a hush, and the explosion. One explosion threw the needle off the record. The final sound was the steady all-clear song of the sirens—again distinctive and unmistakable.

In England, Wales, and Scotland there are 10,000,000 houses. One in 15 has been damaged by bombs or anti-aircraft debris, and one in 100 has been made uninhabitable, said Mr. DeBard. One-fifth of London is gone and migrations have decreased the population by 27 per cent. Before the war there were 3,000 London firemen; now 30,000 plus several hundred thousand of the auxiliary fire force. For each thousand incendiary bombs dropped, 125 fires resulted.

Blackout street lighting is called starlighting — 0.002 footcandles, with 0.004 the maximum allowed under BSARP specifications.

In England they know the value of conservation—of waste materials as well as of automobiles. Three gallons per month is the ration. There have been no new cars in two years and no new tires in one year. Posters say: "Waste is wanted for war weapons. Above all, avoid waste."

So many women have gone to the farms that 4,000,000 additional acres have been put under cultivation. A government bureau examines applicants for (1) health and (2) attitude toward farm work. The farm women work 60 hours per week, receive $2.50 per week to start and $8 when proficient. Just now there is particular watchfulness to prevent crop fires set by incendiary bombs.

Sirens and hand pumps are the devices of the hour.

Paint Both Sides of Wire Fences at Once

DO you know that the James B. Sipe Co. has perfected an economical method of painting woven wire fences on both sides in the same operation? The complete system, including (1) cleaning of the fence to be painted, (2) selection of a paint that will flow, (3) assembly of the equipment, (4) method of application, is described in a leaflet which will be sent you without cost or obligation by THE AMERICAN CITY, 470 Fourth Avenue, New York. In these days when maintenance counts, this method may save valuable materials and property.

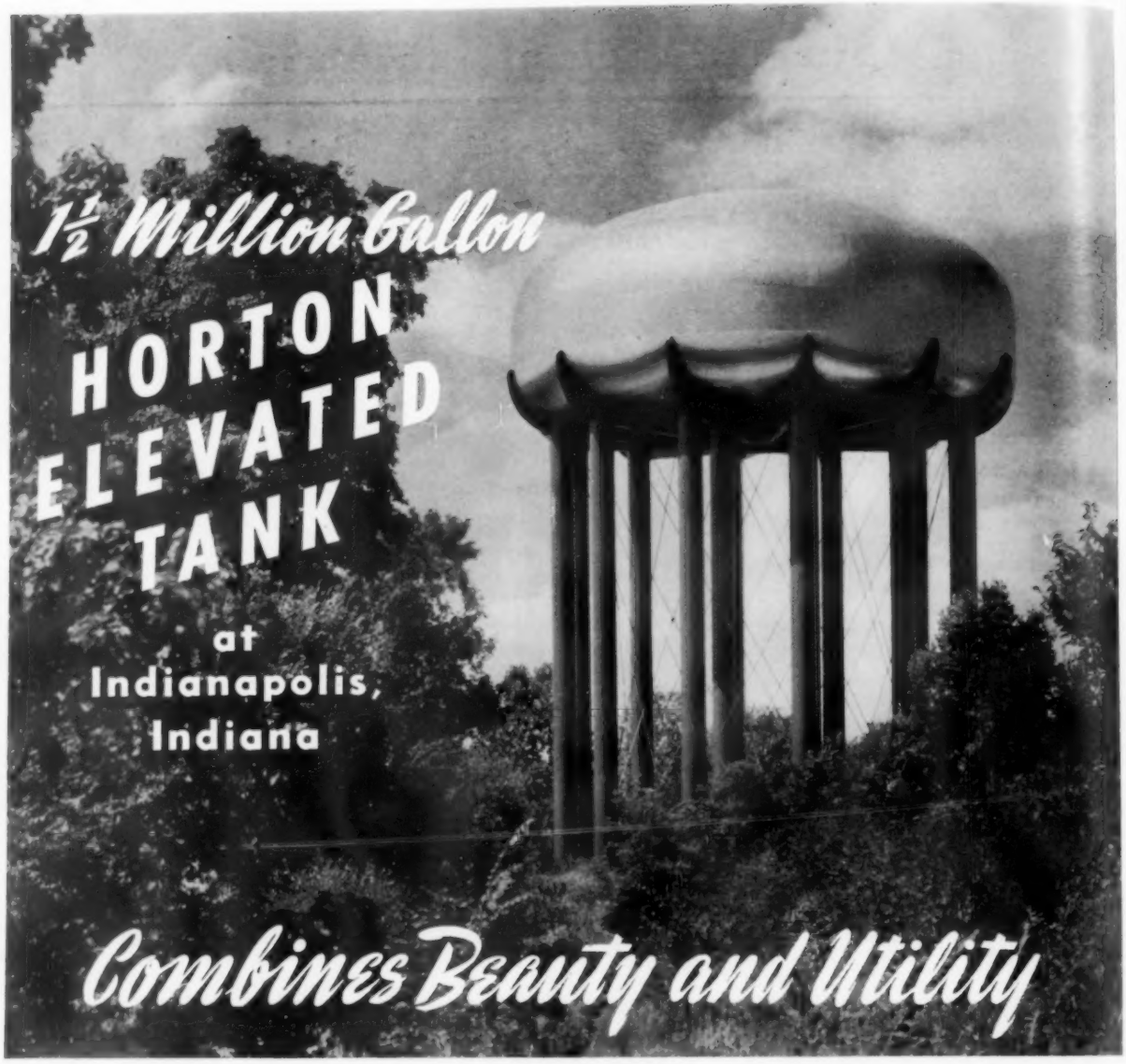
New Fighter Befogs Fires

ARE you acquainted with the FMC fog-drive fire fighter which, by operating at 600 pounds pressure, breaks a gallon of water into 440,000,000 particles, producing an enveloping fog said to be particularly effective? It is hauled by car or propelled by motorcycle. One man manipulates the stream or the fog, and when it is fog he can walk right up to the fire. For a complete description, address THE AMERICAN CITY, 470 Fourth Avenue, New York.

Parking Meters Busy

ELMIRA, N. Y.—Parking meter revenues are up 15 per cent, says Ralph D. Klebes, City Manager of Elmira, N. Y., where 305 Duals and Karparks are collecting 25 cents per day per meter. Friday and Saturday are shopping days for the population within a radius of 75 miles of Elmira, and there are many more cars than a year ago, says Mr. Klebes.

UTICA, N. Y.—Collection of revenue per meter per day from July 1940, through April 1942, shows no falling off in parking in Utica, N. Y., where 1,350 Karpark meters are operating. In July 1940, the initial installation of 600 was made; on December 7, 1940, another 500 were purchased; and on April 24, 1941, another 250 meters were purchased. Collections are made weekly or twice a week by an armored-car company, for a fee of 5 cents per meter. Daily meter revenues were 20 cents during the first four months of both 1941 and 1942, and 24 cents in April, 1942.



TYPICAL of the trend towards combining beauty with utility is the modern elevated storage tank illustrated on this page. Not only does it supply handling of peak loads in the Blue Ridge district of Indianapolis, Ind., but it also presents a pleasantly streamlined appearance that harmonizes with the surrounding residential area. The tank is a Horton radial-cone bottom unit supported upon cylindrical "Colonial design" welded steel columns.

One of the most unusual features of this tank is the utilization of four cylindrical columns instead of one large central riser. One of the tubular columns serves as the water intake, while another houses the ladder used to gain access to the interior of the tank, as well as the overflow pipe.

Installation of this tank, which has a capacity of 1,500,000 gals., has made it possible to maintain adequate uniform pressures, even during mid-summer peak load periods, in a water supply system serving a district of more than 57,000 consumers.

Don't miss the vital wartime problems which will be discussed at the annual A. W. W. A. Convention, Chicago, June 21st to 25th.

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Mention THE AMERICAN CITY—it helps.

Water-Works Operation

Changing from Dry to Liquid Hypochlorite

BECAUSE the government has need for the entire production of high-test calcium hypochlorite, such as Perchloron and HTH, many water works find it advisable to change to the liquid sodium hypochlorite. M. S. Campbell, Chief Division of Public Health Engineering, Washington State Department of Health, lists the following suggestions in adopting water-works procedure to this wartime requirement:

When changing to the liquid sodium hypochlorite, allowance must be made for the difference in strength between the two, in such a manner that the same amount of available chlorine will be present. Usually the high-test calcium hypochlorites run around 70 per cent available chlorine by weight. The liquid sodium hypochlorites average from 10 to 14 per cent.

Operators must be cautioned to check the chlorine residual until they are satisfied that they are dosing the correct amount of chlorine. This solution should be made up at not to exceed one per cent strength; otherwise it will lose its strength rapidly. The sodium hypochlorites in the 14 per cent or 10 per cent solution will quickly lose their strength if exposed to the air.

The process of disinfection for any of the compounds is the same, and the chemicals can be used interchangeably in any of the hypochlorinators that are in use.

WPA Overhauls Water Control Valves

IN the Borough of Queens, New York City, nearly 28,000 valves, controlling the flow of 93,000,000 gallons of water daily to 1,300,000 persons, are being overhauled by the Work Projects Administration.

The work has been undertaken at the request of the Department of Water Supply, Gas and Electricity to insure quick and efficient valve control, both for shutting off water and rerouting it through other mains, which would be necessary in case of damage to mains by bombs or other causes. Manipulation of the various valves may prevent waste of water, interruption in service, and lowering of water pressure when it is most needed for fire-fighting purposes.

All the valves in Queens which are a part of the city's water supply system will be gone over by the WPA forces. The territory to be covered includes the entire North Shore, some central Queens communities, Woodhaven and Cross Bay Boulevards, and the Rockaway peninsula.

In some cases valve boxes have been completely covered through the years from the washing down of mud or from other causes. These are being located quickly by reference to new water supply maps just completed by WPA under another project.

Leakage Imposes Burden on Water-Works System

LEAKAGE of water from the distribution system imposes a heavy burden upon the water works at Philadelphia, Pa., according to a report issued by the Bureau of Municipal Research.

A survey of the entire system made in the years from 1926 to 1931 disclosed an estimated leakage of 34,068,000 gallons per day. The city now has under way a re-survey to find and stop all leaks that have developed. In the West Philadelphia part of this survey, recently completed, it was found that 2,908,000 gallons of water per day were leaking from 154 of the service pipes in use, 2 abandoned services, 11 broken mains, 6 joints in mains and 6 miscellaneous other openings.

This survey is under the direction of the Pitometer Co., Engineers of New York City. This company also supervises the repairing of disclosed leaks.

Water Storage for Emergency Needs

POINTING out the danger to fire-fighting facilities, Dr. George Baehr, chief medical officer for the Office of Civilian Defense, has issued a statement asking civilians not to wait until air raid warnings actually sound before providing water for emergency needs.

If bathtubs, sinks, and other receptacles are filled simultanously, municipal water pressures will be dangerously lowered, and water necessary for fire fighting will not be available. Dr. Baehr recommends keeping water stored at all times both for drinking and for reserve use for fire fighting.

Water stored for drinking and household reserves should be kept in covered receptacles to prevent contamination. Water stored as a reserve for fighting fires need not be covered and should be kept in easily accessible places, preferably on each floor.

In order to avoid the creating of breeding places for mosquito larvae he recommends the use of a teaspoonful of kerosene or fuel oil sprinkled on the surface once each week. This oil evaporates in a few hours and does not constitute a fire hazard.

If an air raid occurs and water mains are broken for a short period of time, consumers should then boil all drinking water from the tap for at least five minutes, unless otherwise instructed by the health department.

Little Rock, Ark., Plans Water Defense Rules

IN an effort to inform each customer of the proper procedure regarding water in case of an air attack or any other major catastrophe, the Little Rock Municipal Water Works has set forth a series of rules and has distributed the pamphlet to each of its 20,000 water consumers. They are as follows:

There is plenty of water available but do not waste any

Prevent waste by repairing all leaking fixtures promptly

Know where your house shut-off is located. Learn how to operate it, keep it in good condition. Use it in an emergency

If pipes are damaged and house shut-off does not stop flow of water, use shut-off in meter box

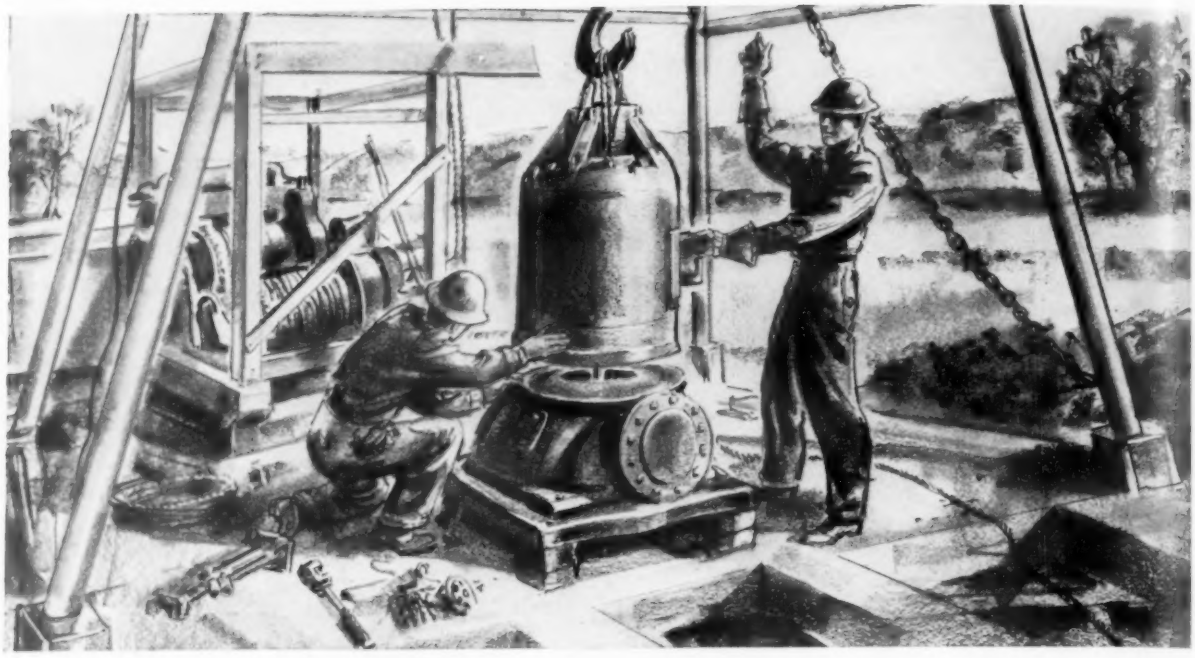
If water service is interrupted do not become alarmed. Main-line breaks will be shut off by the water works and service will be restored as quickly as possible. Keep an emergency supply of drinking water in your refrigerator

Do not try to put out an incendiary bomb with a stream of water. Use a fine spray. If large fires develop, use water sparingly, so that adequate water pressures may be available for fighting fires

Boil all water following interruption of service caused by an air raid until notified to the contrary by the proper authorities

Chlorine dosages will probably be increased to insure a safe water. Pay no attention to chlorinous tastes and odors in the water

Keep this card displayed in your kitchen. Do not call the water department during a raid



Completed On Time!

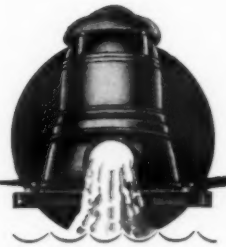
"Never have so many, owed so much, to so few!"

That brilliant statement made by Britain's Winston Churchill can be applied to a case in our own country.

Today, millions of soldiers, sailors and marines are being supplied with an abundance of safe water from Layne built Well Water Systems. The Armed Forces can thank less than two thousand Layne Organization employees. In an amazingly short period of time, they undertook—and *completed on time* —the most gigantic Well Water System building task ever accomplished in this, or in any other country. These widely experienced men located water bearing sands, drilled wells in almost every type of earth formation and set tons of casing. Furthermore they built the pumps, made installations and placed their water systems in operation—producing hundreds of millions of gallons of water daily.

Such outstanding service, performed without delay or failure, has created a brilliant chapter in the long and successful career of the Layne Organization. No greater commendation for ability, speed and efficiency could be offered.

LAYNE & BOWLER, INC.
Memphis, Tenn.



Nation-Wide Service

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LAYNE PUMPS & WELL WATER SYSTEMS

• IF YOU NEED MORE WATER — Layne will provide competent engineers who will cooperate in checking water bearing formations, size of wells necessary and the type of pumps that will operate at the lowest cost per million gallons. No obligation.

WORLD'S LARGEST WATER DEVELOPERS

Buy War Bonds and Stamps. Help win the war for FREEDOM.

Streets and Street Maintenance

An Allis-Chalmers W-Speed Patrol owned by the City of Yakima, Wash., finishing a new gravel street

Tar and Asphalt Restricted in East

ACCORDING to a recent recommendation by Harold L. Ickes, Petroleum Coordinator, tar and asphalt for construction and maintenance of streets and roads in the Atlantic seaboard area has been curtailed for the duration. In cases where work was in progress at the date of the issuance of this order this work may be allowed to continue for fifteen days thereafter. If such a project is certified by the Public Roads Administration as essential and necessary, this project then may be allowed to be completed. Airport runways and aprons are excluded during this year.

The areas that this order covers include the states of Connecticut, Delaware, Florida east of the Apalachicola River, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia, and the District of Columbia.

Cleaning the Streets of Jacksonville, Fla.

THE Street Cleaning Department of Jacksonville, Fla., according to the 1940-41 Jacksonville Yearbook, cleaned an area of 225,395,480 square yards of pavement in 1940, an increase of approximately 30,000,000 square yards over 1939. The sweepers traveled a total of 23,864 miles in making their daily rounds. A total of 25,864 cubic yards of refuse was swept up, which was hauled to incinerators or open dumps in 10,095 loads. During the year, the Department's trucks and carts hauled a grand total of 72,369 loads of grass, brush, ashes, leaves, sand, street-sweepings and garbage from the streets to dumps and incinerators.

The services of the Street Cleaning Department also include garbage collection and disposal. In doing the complete job of keeping Jacksonville clean, the Department's trucks, carts and sweepers traveled a total of 456,567 miles, or a distance equal to more than 18 trips around the earth. P. M. Ulsch, Health Commissioner, is in charge of street cleaning as well as garbage collection and disposal in Jacksonville.

Economy Studies of Paving in Manhattan

THE recently issued report of Stanley M. Isaacs, President, Borough of Manhattan, New York City, prepared in an unusually attractive manner, is readable and understandable by the taxpayer. Under the striking heading, "Gold Bricks and Granite Blocks," is a discussion of costs of paving in the Borough of Manhattan, and we quote the four paragraphs verbatim:

"The most flagrant example of extravagance uncovered by this administration was the indiscriminate use of granite blocks for paving Manhattan's streets. In 1938 it was found that about 4,000,000 square yards of the 11,000,000 square yards of the borough's highways were paved with this inefficient, dangerous, and costly surfacing.

"At this time granite block cost the City about $4.50 a square yard as compared to $1.50 or more a yard for asphalt, an unquestionably superior type of pavement. Since that time the present administration has succeeded in reducing the cost of asphalt paving to 92¢ a square yard, or about one-fifth of the cost of an inferior pavement prior to 1938.

"One striking example of the indiscriminate use of this pavement lies in the construction of the West Side Express Highway between Canal Street and 72nd Street. In the section from Canal Street down to Duane Street, constructed by this administration, a concrete pavement was required in place of granite block, thereby resulting in a saving of $54,000 in this half-mile link alone. Had the rest of the highway been so paved it would have been possible to save over a half a million dollars."

Street Paving Types in Somerville, Mass.

THERE is a total of 90.288 miles of public streets and 10.804 miles of private streets in the city of Somerville, Mass., according to the Annual Report of Thomas E. Hegarty, City Engineer, for the year 1940. There are at present 665 street boundaries consisting of stone bounds and brass rods set in cement for defining street lines.

There are 25.48 miles of permanent paved streets in the city, and the tabulation below shows the number of square yards and miles of various types of streets within the city limits.

TABLE OF STREET CONSTRUCTION*

	Square Yards	Miles
**Streets paved with granite blocks	214,608	8.778
Streets paved with vitrified brick	1,648	0.288
Streets constructed with concrete base and bituminous concrete top	287,616	12.428
Streets constructed with bituminous concrete base and bituminous concrete top	3,790	0.215
†Streets constructed with concrete base and bituminous penetrated top	19,245	0.461
†Streets constructed with broken stone and bituminous concrete top	129,697	8.239
‡Streets constructed with broken stone and bituminous penetrated top		48.597
Streets constructed of water bound macadam		11.306
Streets graveled or unimproved		10.780
Total miles		101.092

* Also 27.92 miles (single track) electric railway paved with granite, asphalt, etc.

** Includes 6,149 sq. yds. (0.438 mile cement concrete roadway) Middlesex Avenue.

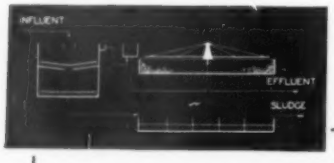
† Includes 0.98 mile of state highway.

‡ Includes 1.406 miles of city boulevard and park roadways and 2.351 miles of state boulevard (Metropolitan District Commission, Park Division).

MORE HOURS IN THE AIR

Typical "air force" type sewage treatment plant. At left, Dorr Clarigester; center, trickling filter with Dorrco Distributor; in rear, sludge drying beds; Flowsheet below.

THROUGH BETTER AIR FIELD SANITATION



DORR EQUIPMENT FOR WAR PLANTS

Air Fields and Ordnance Plants
Design Population—5000.
Type Treatment—Trickling Filter
Dorr Equipment—Clarigester, Distributor, Secondary Clarifier.

Army Camps and Naval Base
Design Population—5000—65,000
Type Treatment—Biofiltration (single or two-stage)

Dorr Equipment—Detritors, Clarifiers, Distributors, Multidigestion Systems

★ We have got to keep them healthy to keep them flying. Hours on the sick list do not add up in the experience records of our Air Force Cadets.

So in this war, as in no other in history, our fliers and other Fighting Forces are being protected adequately against the time consuming inroads of water borne contagion.

The plant above is typical of the many we are now equipping for Air Force units of up to 5000—for civilian war workers, too, at small and medium size arsenals, explosive factories and armament works. In this "air force" type of plant, two Dorr units, a Clarigester and a Distributor, provide complete treatment—primary sedimentation, trickling filters and sludge digestion.

We have prepared accurate designs and specifications for the military type plants listed at the left, providing all types of sewage treatment for groups of 1000 to 50,000 men. These are available to authorized procurement officers, engineers and contractors.

May we talk facts and figures on sanitary engineering from the military standpoint?

DORRCO

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Sewerage and Refuse Disposal

Sewage-Plant Effluent Used As Condenser Water

SEWAGE plant effluent at Corpus Christi, Tex., is being sold to an oil refinery for condenser water, according to a recent report. The contract requires that the effluent be delivered to the refinery free of settleable solids.

The monthly revenue to the city from the sale of effluent formerly wasted amounts valued up to $600. The Corpus Christi plant is also receiving about $70 per week from the sale of sewage sludge after it has been air-dried and pulverized.

—From the March, 1942, Public Works Engineers' News Letter.

Sewage Works Federation Plans Annual Conference

THE Federation of Sewage Works Associations plans its Third Annual Convention at the Hotel Statler, Cleveland, on October 22 to 24, in place of October 15 to 17, as previously planned, according to a statement issued by Morris M. Cohn, Chairman of the Publicity and Attendance Committee.

Meeting dates now announced will permit members to attend the American Public Works Association meeting immediately preceding this meeting in the same city. Leading sanitary engineers, plant operators, manufacturers' representatives, educators, and public officials from over the country are expected. Progress of sewage-works construction during wartime and the questions of priorities and the conservation of materials will be featured in the discussions. Plant operators will present their experiences in a symposium on plant maintenance in wartime, which will cover mechanical units, electrical equipment, sewers, structures, personnel, and sabotage protection.

Ohio Notes Trends in Sewage Treatment

DURING the past 6 years there has been a noticeable trend in sewage-plant design toward the employment of chemical precipitation to assist in the sedimentation processes, regardless of whether this is followed by further treatment. The popularity of activated sludge has been noticeable during the past 15 years as the method of accomplishing the highest practicable degree of sewage treatment. This was disclosed in a recent bulletin issued by the Ohio State University and written by F. H. Waring, Chief Engineer, Ohio Department of Health, and entitled "Public Water Supplies and Control of Stream Pollution in Ohio."

According to this bulletin, about 60 per cent of the municipalities have plants. These serve approximately 70 per cent of the population. The status of sewage treatment in Ohio as of 1940 is as follows:

Type of treatment	Municipalities	Population
Activated Sludge	27	1,086,364
Sand Filters	28	72,856
Trickling Filters	50	1,105,223
Contact Beds	7	29,588
Chemical Precipitation only*	9	110,065
Plain Sedimentation	54	823,596
Total	175	3,227,692

* Chemical precipitation also is used in connection with 3 activated sludge plants, 1 sand filter plant, and 4 trickling filter plants.

Test Your Sewerage Knowledge

THE following "true and false" test appeared in the March-April issue of *Drippings From the Georgia Faucet*, published by the Georgia Water and Sewage Association. Correct answers will be found on page 121 of this issue.

	TRUE	FALSE
1. Pure sewage sludge gas will explode when ignited	____	____
2. The fuel value of sludge gas is due mainly to its methane content	____	____
3. Methane is a gas also found in natural gas wells	____	____
4. Well-digested sludge still contains 40 to 50 per cent of its original organic matter	____	____
5. The nozzle end of the hose, used for "washing down" around a sewage plant, should always be left hanging in one of the sewage tanks to prevent mud puddles in the paths around the plant	____	____
6. Final effluent samples should be taken before post-chlorination	____	____
7. The flooding of trickling filters is the best method for filter fly control	____	____
8. Filters should remain flooded for 12 to 24 hours for effective fly control	____	____
9. During the worst part of fly season trickling filters may be kept flooded	____	____
10. When draining a flooded filter the outlet valve should be "cracked" and the sewage let out slowly so as to give solids a chance to settle in the secondary tank	____	____

Temporary Sanitation in Bombed Areas

THE Refuse Division of the District of Columbia, in cooperation with the Civilian Defense Committee on Sewerage and Sewage Treatment and the U. S. Public Health service, is arriving at a solution to the problem of providing sanitary facilities in thickly populated areas where water and sewage facilities have been destroyed by bombing. Together with the paper sack manufacturers, they have evolved a water-proof paper container with an absorbent lining that may be fitted into the ordinary household toilet. This container is so constructed that it can easily be folded and disposed of after use.

"This problem of providing sanitary facilities in apartment districts and other heavily populated areas is very real," R. E. Tarbett, Senior Sanitary Engineer of the Public Health Service, states. "Although it has not received much attention in the press, nevertheless this was one of the most aggravating problems that had to be faced in England. British officials warned us seriously not to overlook its possibilities in this country. Private dwellings may be equipped temporarily with privys, but the more densely populated areas of cities with apartment buildings and hotels present an entirely different problem."

British practice evolved the use of a galvanized pail that was collected at regular intervals into trucks. Aside from the difficulties of obtaining priorities for metal, it is believed that the proposed method of handling this situation with sacks is more practicable from the standpoint of distribution, collection, and disposal. Preliminary tests have shown the sack able of holding water for as long as three days without leaking. The sack also has the advantage of being far easier to dispose of.

At present the work is only in the experimental state. There have been no plans made to attempt manufacturing these paper sacks on a commercial scale. The work thus far has been a cooperative investigation actively supported by the various paper sack manufacturers. However, responsible officials feel that it will provide an answer to the problem of temporary sanitation in bombed areas.

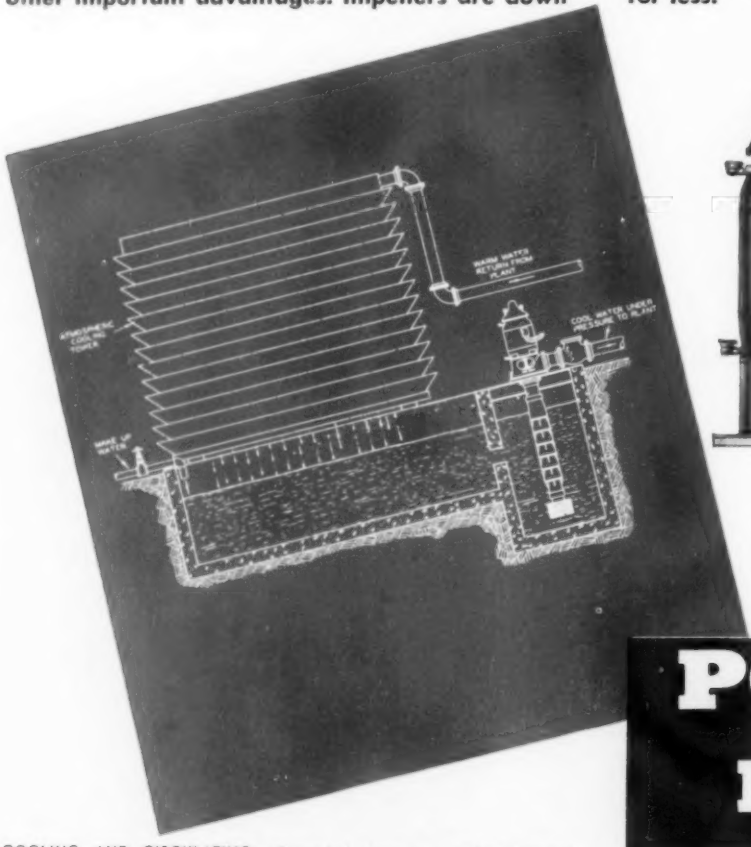
The cost of the sack is estimated at about eight cents.

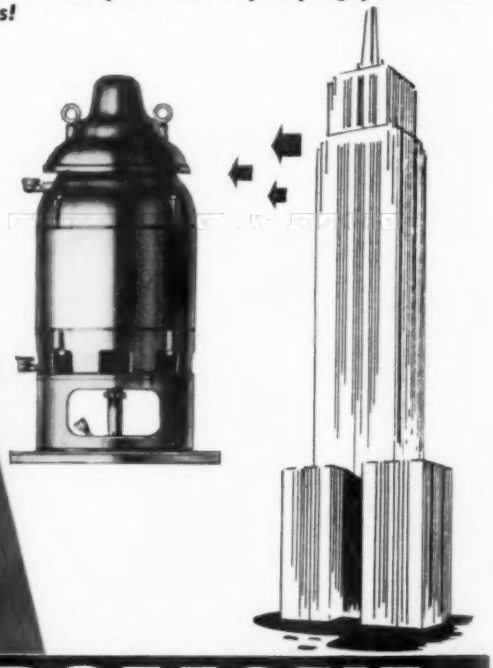
Why waste costly plant space WITH PUMPS OF OUTMODED DESIGN?

POMONA VERTICAL PUMPS are as compact and space-saving as a modern skyscraper. Instead of wasting valuable floor space with complicated piping...and with shafting, motor and pump spread "broadside"...Pomona Pumps operate *vertically*. They require only the small compact space occupied by the motor head. Shaft and pump impellers are down in the sump or tank, completely out of the way.

This not only saves costly plant space, but provides other important advantages. Impellers are down below water level, instantly ready to go *without priming*. Shaft and bearings are in the water stream, completely lubricated by the water being pumped, eliminating maintenance and oiling at these points. And the piping is simplified, for the discharge can be placed at, above—or below—floor level . . . wherever is most convenient for maximum compactness and plant efficiency.

Find out today the many ways Pomona Vertical Pumps will do your water pumping job better—for less!





POMONA
Water-Lubricated
PUMPS

COOLING AND CIRCULATING: *Illustrated above is a typical Pomona cooling pump installation. Note how Pomonas save space and eliminate complicated and expensive pipe layouts. What's more, they are easily adjustable for varying head requirements with proportionate savings in power . . . they may be installed in the open without need for housing—in basements, on roofs, over tanks or reservoirs wherever is most convenient . . . and, because they are lubricated by the water being pumped, constant care and attention are eliminated.*

POMONA PUMP CO., 120 Broadway, New York City
Plants located at 4301 South Spring Avenue, St. Louis, Missouri, and 206 Commercial Street, Pomona, California

Public Safety

Old Fire Engines Rebuilt — In Case

By Lt. John E. Jordan
Asst. Chief, Fire Prevention Bureau
Columbus, Ohio

WHEN ten new pieces of fire apparatus were purchased in 1941, Chief E. P. Welch of the Columbus, Ohio, fire department, started the rehabilitation of ten old pumping engines which ordinarily would have been scrapped. The rebuilt apparatus is manned by off-duty members of Firefighters Local No. 67, shown above with men who rebuilt it.

This extra equipment gives the Ohio capital ten reserve engine companies in addition to the regular force of 18 engine companies. Recognition of the importance of the measure was recorded by the Ohio Fire Chiefs Convention in April, and on May 1 the Columbus Evening Dispatch said editorially:

> This is a contribution to the greater safety of the city which would be valuable at any time and is doubly appreciated in time of war when the threat of enemy bombings, however remote, is a possibility to be taken into account.
>
> Chief Welch and his men have shown patriotism and foresight beyond the ordinary call of duty in carrying through this plan and putting it into operation. Their spirit will be appreciated by the community quite as much as the added margin of safety provided by the 10 reserve companies which now augment the city's 18 regular units.

Our department's new Seagrave apparatus, the equipment carried by our emergency car, and the reorganization of our fire-prevention bureau were described in the November, 1941, issue of The American City.

Police Patrols in Columbus, Ohio

These new patrol cars, one of them armored with bullet-proof steel and glass, and all suited for ambulance work, are in the service of the Columbus, Ohio, Police Department. A Mack chassis carries a local Armstrong Johnson body, with siren of The Federal Electric Co., Chicago, and Pistol Grip searchlight. In the picture, left to right, are Inspector T. A. Scully; Walter Curlis, Superintendent of the Municipal Garage; M. F. Sperry, Mack district manager; Mayor F. E. Green; and Roy B. Weed, Safety Director

1,077 *Local Transit Administrators*

LETTERS clarifying the procedure to be followed in setting up and operating the country's first war transportation program have been sent out by Joseph B. Eastman, Director, Office of Defense Transportation, to the mayors of all cities, towns, and boroughs with a population of 10,000 or more. The purpose is to prolong life and increase efficiency. "The success of this plan," writes Mr. Eastman," depends largely upon the operation of your local group. I appreciate the cooperation thus far shown and earnestly request your continued full support." A manual with suggestions for setting up local war transportation programs has been sent to all governors, mayors, and burgesses.

Paints for Vehicle Camouflage

OPERATORS of motor bus and transit lines will be faced with a new problem in connection with the maintenance of passenger comfort when they repaint their decks with olive-drab, in cooperation with the movement designed to prevent detection of major traffic arteries from the air.

The new infra-red-reflecting camouflage paints, recently developed by The Arco Co., Cleveland, Ohio, for protective concealment of vital defense structures and military equipment, are particularly suited for use on public transportation vehicles under these emergency conditions. They are being produced in olive-drab and other camouflage colors which would ordinarily absorb heat and put an additional load on the air-conditioning systems of buses. The Arco "Infray" paints are dull and are hard to detect from the air, but have approximately the same heat-reflecting qualities as aluminum or other light and glossy finishes.

IN hundreds of communities where Mathews Hydrants are standard, a couple of extra Mathews Barrels take care of every emergency and all routine service. These barrels, or standpipes, contain all working parts including main-valve and drain-valve seats. They are inserted through an outer protection and screwed up tight. Why not repair *your* accidents this easy way? Why not do *your* overhauling in indoor comfort? This is a reminder to Mathews owners to make a war-time check of their spare barrels. To everybody else it's a big reason for specifying Mathews.

MATHEWS HYDRANTS

400 CHESTNUT STREET, PHILADELPHIA, PA.

ESTABLISHED IN 1803

Made by R.D. WOOD Company

MANUFACTURERS OF SAND SPUN PIPE (CENTRIFUGALLY CAST IN SAND MOLDS) AND R. D. WOOD GATE VALVES

Buy War Bonds and Stamps. Help win the war for FREEDOM.

Keep Up-to-Date on New Equipment

Please check over the following list of interesting catalogs obtainable free of charge and either write direct to the manufacturers for their literature, or, if you prefer, put a circle around the identifying numbers below to indicate the catalogs you want, mail this coupon to The American City Magazine, 470 Fourth Ave., New York, and we will see that the catalogs are sent to you without expense or obligation on your part. 6-42

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278 279 280 281 282 283 284 285 286 287 288 289
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Name ..... **Position** .....

Address .....

Quenching the Thirst of the War Industries

254. War industries require unprecedented amounts of water and it is the water department's duty to furnish a continuous supply, regardless of increased demand. For a low-cost, permanent answer to the problem of more water, write to the Ranney Water Collector Corp. of New York, Heyburn Building, Louisville, Ky., for descriptive bulletins.

Jointing Cast-Iron Water Mains

255. For jointing cast-iron water mains efficiently and tightly, Leadite has been in use and tested for a period of over 40 years. This material, shipped in powder form and packed in sacks of 100 lbs. each, requires no large bell-holes in its use. For further information on the use of this material, write to The Leadite Co., Girard Trust Co. Bldg., Philadelphia, Pa.

Hydrants for Defense Areas

256. To provide a quick supply of water with the least possible shock, to enable the operator to shut off the hydrant without water harm, and to facilitate easy inspection and servicing, the Ludlow Valve Mfg. Co. has developed hydrants that it feels will meet these requirements. In considering water hydrants for your defense area, write to The Ludlow Valve Mfg. Co., Inc., Troy, N. Y., for the catalog describing these valves.

A Centrifugal Pump to Fit Your Job

257. The many combinations of capacities, heads, and speeds require careful design of each centrifugal pump to insure best efficiency and desired operating characteristics. The Centrifugal Pump Dept. of the De Laval Steam Turbine Co., Trenton, N. J., is ready to give you all the benefit of its extensive experience in this field. Write to the De Laval Steam Turbine Co. for leaflet P-3220.

Portable Pumps to Eliminate Delays

258. The Homelite portable pumps with capacities of 15,000 gallons per hour enable you to dewater ditches and manholes and other similar places quickly, thereby eliminating delays and making it possible for men to start work quicker. These 91-lb. units do not tie up scarce labor. For literature regarding these pumps write to the Homelite Corporation, 205 Riverdale Ave., Port Chester, N. Y.

Safe Water Faster

259. Development of a new portable chlorinating unit is the latest step in the Wallace & Tiernan program covering emergency sterilization of water supplies. This equipment is easily portable, designed to save time in hooking up, and designed for a wide capacity range for either solution or direct feed. For complete information and specifications write to Wallace & Tiernan Co., Inc., Belleville, N. J., for technical bulletin No. 231.

Eliminate Water Line Losses

260. There is no economy in water-works operations when you lose a big per cent of the water in water-main leaks. The Joseph G. Pollard Co., Inc., 141 Ashland Place, Brooklyn, N. Y., produces a water-leak survey instrument that has a valuable place in every water works department. It is a precision outfit that gives the exact location of every pipe leak. Write to them for descriptive literature.

Efficient, Economical Water Hydrants

261. High spots in the Mueller water hydrant are that they are trimly designed; that they have safety features which cut the cost of collisions; and that the valve mechanisms are so designed that the hydrant cannot freeze under any conditions. The Mueller Co. feels that it can offer real economy to any community studying hydrant problems. For literature on these hydrants, write to the Mueller Co., Decatur, Ill.

Water Softening of All Types

262. The Permutit Co. points out that its facilities are built to handle water conditioning of every type from the little town to the big city. This wide range of service enables this company to provide equipment to fit individual needs. Write to The Permutit Co., Dept. G3, 330 West 42nd St., N. Y. C., for literature regarding your particular water-works problems.

Accurate Water Meters

263. Worthington-Gamon water meters are built to operate accurately year after year with minimum maintenance. For literature, write to Worthington-Gamon Meter Co., Newark, N. J.

New Emergency Drainage Pipe

264. The Armco Company announces the introduction of a new emergency drainage pipe designed of wood and eliminating steel bands, metal reinforcements, and other critical material. It is pointed out that the semi-flexible design produces ample strength, yet the pipe is light in weight and easy to handle. Full information and literature on this new drainage pipe will be furnished upon request by writing the Armco Drainage Products Assn., 425 Curtis St., Middletown, Ohio.

Lighting Vital Areas

265. Complete and careful illumination engineering assists in the detection of intruders and saboteurs before the damage is done. General Electric states that its lighting specialists are available to assist you in solving difficult lighting problems in regard to protection of essential municipal utilities. For full information and literature write to General Electric Co., Schenectady, N. Y.

Improved Grader Operations

266. Especially built for mixing, scarifying, and general maintenance work, the Austin-Western middle-weight power grader with its added feature of four-wheel drive, is modeled after the famous heavy-duty 99-M popular in the construction field. For full information and specifications on this newest Austin-Western power grader, write to The Austin-Western Road Machinery Co., Aurora, Ill.

Improving Traffic with Parking Meters

267. The Dual Parking Meter Co. points to statements that it costs 5¼ cents to drive around the block looking for parking space and asserts that the proper placing of automatic parking meters helps stop this wasteful driving as well as bringing about faster moving of traffic and holding down tax burdens. For literature on how these parking meters can be worked into your municipal program, write to the Dual Parking Meter Co., Commerce Exchange Bldg., Oklahoma City, Okla.

Engine Generator Units without Flywheels

268. Rathbun-Jones engineers have developed an engine and generator unit so designed that the generator rotor will supplement the customary flywheel. This allows important economies in the space required for the engine, as well as in the engine base foundations. For full information regarding these units write to Rathbun-Jones Engineering Co., Toledo, Ohio.

Emergency Signal Systems

269. Over 2,000 municipalities, as well as many industrial plants, use the Gamewell system for the protection of life and property. These signaling systems find use in fire alarms, police signaling, air raid warnings, industrial fire alarms, automatic fire detection, fire and watchmen's supervisory duties. For full information and engineering service in planning your protective signal systems write to The Gamewell Co., Newton Upper Falls, Mass.

(Continued on page 18)

The FIRST Water Meter patent in the United States was granted to Henry R. Worthington in 1855

Since then . . .

Worthington-Gamon has successfully executed the largest contracts awarded for water meters. . . . has continued to serve year after year many hundreds of satisfied customers. . . . has modernized its product to meet present requirements.

Now . . .

Worthington-Gamon manufacturing facilities are augmented by a thoroughly equipped Research Laboratory manned by technically trained water works engineers.

Today . . .

Worthington-Gamon is furnishing water meters to meet the most rigid requirements of material, workmanship and accuracy.

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WORTHINGTON-GAMON METER CO.
General Offices: NEWARK, NEW JERSEY

WORTHINGTON-GAMON

WG1-8

WHICH OF THESE CATALOGS WOULD YOU LIKE?

(*Continued from page 17*)

Training for Municipal Administration

270. The Institute for Training in Municipal Administration has ten correspondence courses covering a wide range of administrative municipal duties. A special circular describing these courses may be obtained by writing to this Institute at 1315 E. 60th St., Chicago, Ill.

Cleaning Sewers for Health and Safety

271. The Flexible Sewer-Rod Equipment Co. points out that you need no priorities to increase the capacity of your sewers by properly cleaning them. For literature regarding sewer and water pipe cleaning write to the Flexible Sewer-Rod Equipment Co., 9059 Venice Blvd., Los Angeles, Calif.

Efficient Asphalt Heaters

272. The Aeroil Burner Co., Inc., West New York, N. J., states that the "Heet-Master" will produce double the capacity of ordinary asphalt-heating kettles. You may obtain free bulletins covering heaters, sprayers, melting furnishings, oil burners, and torch outfits, asphalt paving and tool accessories, by writing to the company.

Threaded Cast-Iron Pipe

273. The McWane Cast Iron Pipe Co. states that it is an easy job to lay permanent two-inch mains with the McWane threaded pipe. For information and literature on threaded cast-iron pipe write to the McWane Cast Iron Pipe Co., Birmingham, Ala.

Efficient Water Carriers

274. Transite pipe is easy to handle, quick to assemble, highly resistant to corrosion and tuberculation. Joint leakage, it is also pointed out, is minimized by the flexibility and tightness of Simplex Couplings. For details on Transite Pipe for water lines write for Brochure TR-11A, and for information on Transite Sewer Pipe write for Brochure TR-21A, Johns-Manville, 22 E. 40th St., New York.

Fence Protection for Water Reservoirs

275. Fencing is one practical deterrent to sabotage activities. Information on fencing may be obtained from the Stewart Iron Works Co., Inc., 921 Stewart Block, Cincinnati, Ohio. Ask for catalog 1-41.

Concrete Pipe for Municipal Purposes

276. With the increased demand for pipe services that will not use critical material, concrete pipe becomes increasingly important. Quinn Wire & Iron Works furnishes pipe forms and mixing formulas to produce fine concrete pipe at low cost. This pipe may be constructed in various sizes and lengths and with tongue and groove or bell end. Complete information, prices, and estimates may be obtained by writing Quinn Wire & Iron Works, 1623 12th St., Boone, Ia.

An Improved Clamp for Cast-Iron Pipe

277. Glands and bolts for the Carson clamps are made of corrosion-resistant charcoal cast iron, and last as long as a cast-iron pipe. Glands accommodate variations in pipe dimensions and insure uniform compression of rubber gasket. Write to Carson-Cadillac Co., 1221 Pinson St., Birmingham, Ala., for their illustrated literature.

Asphalt and Tar Kettles

278. For full information on asphalt and tar kettles with both hand and motor-driven spray, write to the White Mfg. Co., Elkhart, Ind., requesting their catalog.

Sewage- and Water-Treatment Equipment

279. The Jeffrey engineers offer technical data on both equipment and plant design to meet your sewage- and water-treatment requirements. For literature and additional information write to The Jeffrey Mfg. Co., 970-99 No. Fourth St., Columbus, Ohio.

Consolidating Road Surfaces

280. The Calcium-Chloride Association has a new booklet entitled "Road Surface Consolidation" which outlines not only how to save material on the road, but how to economize on maintenance equipment operation. You may obtain this booklet by writing the Calcium Chloride Assn., 4145 Penobscot Bldg., Detroit, Mich.

Hydrants and Valves

281. The M & H Valve & Fittings Co. offers valves, hydrants, and pipeline accessories meeting AWWA and Underwriters laboratory requirements. These, it is pointed out, are easy to repair and have low maintenance cost. For additional information and literature write to the M & H Valve & Fittings Co., Anniston, Ala.

Jointing Cast-Iron Water Mains

282. For jointing cast-iron water mains efficiently, the Leadite Co. invites the investigation of their jointing compound that requires no caulking. Write to The Leadite Co., Girard Trust Co. Bldg., Philadelphia, Pa., for information and literature.

Materials and Equipment for Municipalities

283. Thompson Materials Corp., 204 West St., New York, has descriptive bulletins covering materials and equipment that will be supplied municipalities covering concrete curing, bituminous work, expansion joints, spray machines, and other related miscellaneous items.

(*Continued on page 20*)

Save...

Time, Money and Labor in making pipe joints

« « « The only field equipment necessary to make a Universal Cast Iron Pipe Bolted Joint is a Ratchet Wrench.

by using

UNIVERSAL
CAST IRON PIPE

(PIPE and JOINT are ONE)

Outstanding Advantages:

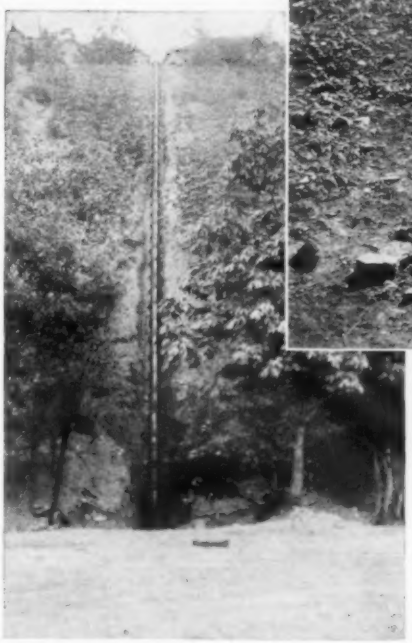
1. *No calking or pouring of lead or lead substitutes. No gaskets used.*
2. No bell holes to dig. Can be laid in a narrow trench. Cost of wide trenching is eliminated.
3. *Can be laid with SPEED. Easier and cheaper to install because only two bolts need to be inserted in the lugs, tightened with a racket wrench (the only tool needed), and the completed joint is made in a few minutes. Experienced workmen are not needed.*
4. Nothing to deteriorate; nothing to work loose; no leakage; no maintenance cost.
5. Flexibility: Universal pipe is very flexible. It withstands expansion, contraction, unequal settlement, vibration and shock, and electrolysis. Many curves are laid with straight lengths and do not need special fittings.
6. *Universal pipe can be laid on rocky soil, under water and in sub-zero weather.*

Specify UNIVERSAL PIPE for water mains and sewers

Furnished in hot tar dipped, cement lined, and enameline lining.

Quick service to customers: By rail, truck or water from our foundries and warehouses located from coast to coast.

THE CENTRAL FOUNDRY CO.
386 FOURTH AVENUE, NEW YORK



Above *All straight lengths of Universal pipe in this curve.*

At left *16" pipe laid on a 45-degree slope. Note deflection at top to level ground without fittings.*

USE THE COUPON

DEPT. C

THE CENTRAL FOUNDRY COMPANY
386 Fourth Avenue, New York

I am interested in SAVING LABOR, TIME, MONEY and EQUIPMENT in pipe-laying. Send me the UNIVERSAL catalog.

Name .....

Position .....

Address .....

.....

BUFFALO-MADE
NIAGARA
WATER METERS

THE WARTIME NEED FOR WATER METERS

Conservation of critical materials and resources in wartime means continued use of water meters. Every old or new meter helps avoid waste of water, so reduces the need for additional pipelines, pumping stations, purification equipment and other costly construction.

Where unmetered water supply is inadequate, meters will stop waste at lower cost and with the use of less critical material than is usually required to provide additional supply.

Niagara Meters comply with victory-meter limitations on use of copper, because they have always been made with cast iron casings. They provide the same fine accuracy of measurement that all users of Niagara Meters have enjoyed for years past.

Write for our new bulletin: "Using your Buffalo-made Water Meters to Best Advantage in Wartime."

BUFFALO
METER COMPANY
2902 MAIN STREET BUFFALO, N. Y.

WHICH OF THESE CATALOGS WOULD YOU LIKE?

(*Continued from page 18*)

Constant-Current Regulators for Street Lighting

284. The Wagner Electric Corp. states that their current regulators are efficient in operation, easy to install, and require a minimum of maintenance. Write to the company, 6400 Plymouth Ave., St. Louis, Mo., for their bulletin on the Wagner YH constant regulator.

Automatic Valves

285. Municipal utilities operators and superintendents will be interested in the valves produced by the Ross Valve Mfg. Co. to control liquid elevation and head in tanks and basins, to maintain desired discharge or safe operating pressures. Literature and additional information may be obtained by writing the Ross Valve Mfg. Co., Inc., P. O. Box 596, Troy, N. Y.

Electric Welded Steel Pipe

286. Electric welded steel pipe, fabricated in accordance with the latest improved methods, is highly resistant to sudden shock and rupture. The Alco Products Division of the American Locomotive Co., 30 Church St., New York, will furnish information covering your requirements for welded steel pipe.

Portable Self-Priming Pumps

287. The Homelite Corp., 205 Riverdale Ave., Port Chester, N. Y., produces a small pump that will interest water works and sewage men. Weighing only 91 lbs., it will handle adequately small seepage water, or volumes to a capacity of 15,000 gallons per hour. On request the company will send you bulletins covering these pumps, and also service manuals for pumps of this type that you may now own. If writing for the service manual specify the model and serial number of the Homelite pump you are now using.

Emergency Chlorination Requirements

288. Wallace & Tiernan Co., Inc., Belleville, N. J., has constructed equipment especially designed to protect water supplies against the possibilities of air raids, sabotage, and other emergency conditions. Full information and literature is available on this equipment.

Air Raid Sirens

289. The Foster Engineering Company will furnish a 16-page booklet containing information on sirens for air raid warning service. This booklet covers the decibel rating and lists installations of air raid warnings now in service. You may obtain this by writing the Foster Engineering Co., 109 Monroe St., Newark, N. J. and asking for Reprint MSE and bulletin 41-S.

Equipment for Public Safety Departments

290. An 8-page bulletin covering plant protection and public safety departments has been prepared by the Mine Safety Appliances Co., Braddock, Thomas and Meade Sts., Pittsburgh, Pa. This bulletin covers fire-fighting equipment such as masks, helmets, protective asbestos suits, and blankets. It also includes safety belts, gas protection, lamps, first aid kits, stretchers, and other miscellaneous equipment.

Equipment for Water Purification

291. The Dorr Co., Inc. has produced a new folder dealing with the complete line of Dorr Water Pretreatment equipment—the Dorrco Flocculator, the Dorr Clarifier, and the Barnes-Dorrco Sludge Pump, also the Dorrco Clariflocculator, the Dorrco Hydro-softener, and the Dorrco Monorake. This bulletin deals briefly with each of these items. Individual bulletins describing these items are available on request. Write to The Dorr Co., 570 Lexington Ave., New York.

New Anniversary Booklet

292. The Mathieson Alkali Works, Inc., has published a very attractive 46-page booklet commemorating 50 years of the company's operation. The booklet contains many items of historical and technical interest in tracing the growth of this company. A copy may be obtained by writing Mathieson Alkali Works, Inc., 60 E. 42nd St., New York.

New Pumping Control Bulletin

293. A new bulletin has just been published by the Foxboro Co., Foxboro, Mass., describing Rotax electric-operated control as employed in pumping applications. Rotax Controllers of the recording and indicating type are shown, together with specimen chart records and installation photos. The text is largely devoted to water works and sewage engineering but also covers pumping applications which are common in various industrial fields. Schematic diagrams of typical pumping installations are given. Copies of the bulletin, No. B-294, will be sent on request.

Diesel Engines for Municipal Requirements

294. The Nordberg Mfg. Co., Milwaukee, Wisc., is ready to advise you regarding your municipal electric requirements, basing their advice on numerous highly successful installations. Write to the company for information and literature.

Pumps with Trouble-Free Performance

295. The Peerless Pump Division of the Food Machinery Corp., 335 West Ave., 26, Los Angeles, Calif., points out that their improved pump design gives high sustained efficiencies, a wide range of capacities, and low operating and maintenance costs. For literature write to the Peerless Pump Division at the address above.

(*Continued on page 22*)

"We'll have t'grease the pole if we're gonna catch the MACK!"

Mack model type 505 emergency truck in use at Martin Aircraft Co.

Now that you have a Mack, boys, you'll have to get down that pole a little faster. Remember, when the gong rings, a Mack is always rarin' to go.

After all, in Mack fire apparatus you have the product of the greatest laboratory, engineering, and manufacturing resources in the industry. These resources are concentrated from the blueprint stage through to the finished truck on one simple end—building the finest fire apparatus it is possible to build. Every single vital part is made in Mack factories under rigorous Mack supervision to the advanced requirements of Mack design. We believe we can truthfully say that the results in performance and stamina set the marks for other fire apparatus to shoot at.

Mack supervision doesn't end with delivery, either. Quick economical service is available at 70 direct factory branches.

Write for detailed information on this superior fire apparatus today.

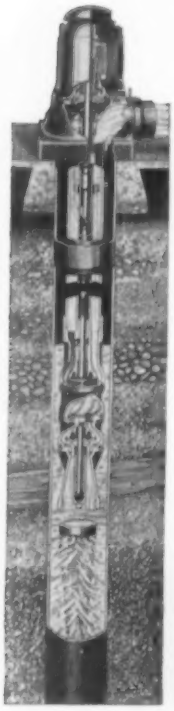
MACK MANUFACTURING CORP., FIRE ENGINE DIVISION, LONG ISLAND CITY, N. Y.

The Mack fire apparatus line includes triple and quadruple pumpers from 200 to 1500 gallon capacity, hose wagons, city service ladder trucks, squad cars—comprising 14 distinct and specialized models.

Mack

When you write for that catalog, kindly mention THE AMERICAN CITY.

Are You Specifying a Turbine Pump For the First Time!



Be Sure You Get All the Features That Make Peerless America's Largest Selling Pump

Right now, with war-speeded production, you've got to have a pump that takes extra duties in stride. Peerless engineers have vastly improved pump performance with such achievements as "double bowl bearings," "double seal," "hydrofoil principle," "helical action" and a host of other scientific engineering advantages. They permit Peerless Pumps to deliver sustained high efficiencies, to pump longer without shut-downs and to lift water at lowest cost, *in ALL services.* Capacities: from 10 to 100,000 g.p.m. INQUIRE ABOUT Peerless Gasoline and Fuel Pumps for direct refueling and transfer.

Ask for Literature

PEERLESS PUMP DIVISION
Food Machinery Corporation
Factories: Los Angeles, San Jose, Fresno, Calif. and Canton, Ohio.

A WATER OR OIL LUBRICATION
Peerless
TURBINE PUMPS

Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

Warren Pipe Co. of Massachusetts
75 Federal Street, Boston, Mass.

WHICH OF THESE CATALOGS WOULD YOU LIKE

(Continued from page 20)

Precision-Built Meters During Wartime

296. The Buffalo Meter Co., 2902 Main St., Buffalo, N. Y., is now manufacturing meters according to a design that reduces copper requirements by two-thirds. Write for details on their new meters that conserve critical material without loss of quality.

Fire Alarms, Police Signaling, Air Raid Warnings

297. The Gamewell Co., Newton Upper Falls, Mass., states that it is ready to cooperate in planning arrangements for fire alarms, police signaling, air raid warnings, and other protective signaling systems for municipalities. Write the company for free literature and information.

Motor-Driven Police Protection

298. The Harley-Davidson Motor Co., Milwaukee, Wisc., will send you advice and literature on the services that their motorcycles can furnish for your police force.

Floodlight Protection

299. The Westinghouse Electric & Mfg. Co. produces floodlights that meet modern protective requirements. You may obtain the booklet "Protection With Light Planning Book, B-2280-A," by writing Westinghouse Electric & Mfg. Co., Edgewater Park, Cleveland, Ohio.

Traffic Signs during the Emergency

300. The new "Reflecto-Chain" is easily attached to wood or plywood to form traffic signs formerly made from steel. Descriptive literature and prices may be obtained by writing The Star-Lite Co., 312 E. Market St., Indianapolis, Ind.

Cleaning Streets for Storm Drainage

301. The Austin-Western Road Machinery Co. points out that street sweepers designed to adequately and economically keep paved streets clear of accumulation of twigs and leaves will prevent the clogging of storm sewers and allow heavy downpours to drain off rapidly. For literature and information regarding street-cleaning requirements, write to the Austin-Western Road Machinery Co., Aurora, Ill.

Photo-Identification To Protect against Sabotage

302. To quickly and accurately produce a permanent record that will protect the honest employee and assist in eliminating potential saboteurs, the National Photo-Identity Corp. has produced a portable camera known as the Monroe Duo Camera that photographs the person to be identified along with identifying material. The camera is designed so that it records simultaneously this information upon the same negative, thus producing a tamper-proof card or badge. Detailed information regarding this camera is explained in a bulletin published by this company. Write to National Photo-Identity Corp., 600 S. Michigan Ave., Suite 809, Chicago, Ill.

Sewer-Cleaning Equipment

303. The W. H. Stewart Co., P. O. Box 767, Syracuse, N. Y., will furnish free their catalog covering sewer-cleaning tools, sewer-cleaning machines, buckets, and root cutters. The company is also ready to advise you regarding sewer-cleaning problems.

Efficient Weed Killers

304. The C. B. Dolge Co., Westport, Conn., will furnish literature and details covering their Dolge weed-killer that they report will give greater coverage than ordinary chemicals.

Preventing Rust in Water Storage Tanks

305. The protection of water storage tanks by electrical means is an established development. This process prevents rust from forming by reversing the electrolysis that causes it. The RustaRestor Corp. points out that the expense involved is actually less than the cost of painting, and the protection more complete. For full information write to RustaRestor Corp., 1450 W. State St., Fremont, Ohio.

Protecting Pipe-Line Carrying Capacity

306. For pipe lines where the diameter is 30 inches or more, a protective lining of dense cement mortar may be applied to prevent corrosion and tuberculation. The Centriline Corp., 140 Cedar St., New York City, will furnish literature and figures on such pipe-line maintenance operations.

Air Raid Sirens For Every Purpose

307. The Sparks-Withington Company have produced air raid sirens that they feel will meet every purpose. These sirens have been based on experience that they have had on sound projection and control. You may obtain advice on air raid warning problems by writing to the Air Raid Technical Information Bureau of the Sparks-Withington Co., Jackson, Mich., Plant One.

Making Signal and Control Cables Last Longer

308. The Hazard Insulated Wire Works, Wilkes-Barre, Pa., has prepared a series of instructions for protecting the life of insulated cables. To assist you in making the most of your present cables write to Hazard Insulated Wire Works for instructions on how to install, operate, and maintain your electrical services.

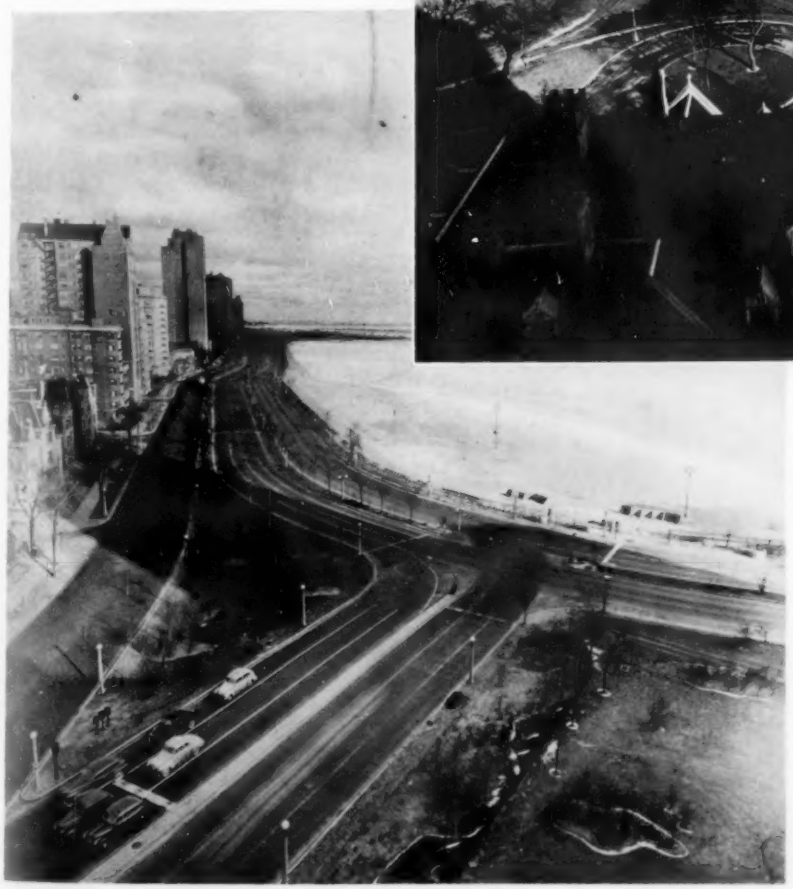
Vol. LVII, No. 6 The American City June, 1942

Chicago's New Lake-Front Highway

By Earl Minderman
Director of Information, Work Projects Administration

A FIFTEEN-MILE express highway along Chicago's lake front, which diverts a huge volume of through north-south traffic between the heart of the city and the area to the north, has been completed with the assistance of the Work Projects Administration. With completion of the last link in the limited road, in the area adjacent to Lincoln Park, the wide, beautifully landscaped highway provides a through, non-stop route from the Loop district, reduces traffic hazards, and increases Chicago's transportation facilities.

The increasing traffic that was incessantly jamming Michigan Avenue led two park boards in 1928 to inaugurate construction of a limited highway that would divert part of this load to a route along the shoreline. By 1932, when a shutdown was forced by lack of funds, considerable work had been done on the southern end. Two years later the boards were consolidated into the Chicago Park District.



Top—Limited Highway, Cook Co., Chicago, Ill., looking north from North Avenue. Under and overpass shown here
Bottom—Limited Highway looking north from the Drake Hotel

Federal funds became available, and the project was rushed to completion by the end of last year.

The last part of the road to be completed was the Belmont Avenue grade separation and the roadway adjacent to Lincoln Park, which was made a certified defense project to speed its completion.

As the southern end of the highway became complete, traffic congestion in Lincoln Park became acute, for through streets from the

city district poured thousands of vehicles and pedestrians into the park on Sundays and holidays. Traffic injuries and deaths in the crowded driveways of Lincoln Park mounted steadily until in 1938 the Park District began a program of construction planned to divert through traffic from the park to a route along the lake, with frequent under-passes and over-crossings to provide safety for vehicles and pedestrians.

A connection between La Salle Street and the new drive was constructed, and at the terminus of North Avenue on this connecting road a large grade separation was built, to permit the flow of traffic from these heavily traveled streets to reach North Beach. This was opened in the middle of 1940.

Ambitious Engineering Project

In July of that year work was started on the section of the highway northward from the North Avenue Bridge, one of the most ambitious engineering projects undertaken in Chicago in many years. Two more large grade separations, two large bridges, and about two miles of 100-foot wide concrete pavement with a new type of movable traffic separator were included in the operation.

These movable traffic separators are an innovation in Chicago's traffic control. Installed in three equidistant trenches running the length of this section of the highway are steel and concrete castings that can be raised or lowered at the touch of a button from a remote location, powered by electric and hydraulic controls. The eight-lane highway can thus be channelized into wide or narrow lanes, according to the flow and direction of traffic and the needs of the moment.

Since the new highway is located close to the shoreline, a large amount of work was necessary to protect the highway against wave erosion. An old road in the same location had been washed out or blocked on numerous occasions. To obviate the same situation on the new road, a sand fill was constructed behind submerged, interlocked sheet piling, running parallel to the shoreline some 600 feet out in the lake, with jetties at right angles connectiong shore and fill.

Roadways of Various Types

Various types of roadways were constructed by the WPA along the project, including an asphalt-topped section of three 45-foot lanes from Ohio Street to North Avenue, the 100-foot monolithic concrete Marine Drive between Montrose and Wilson Avenues, the asphaltic concrete in La Salle Street extension, and many others. In all, roadway construction entailed placing of about 757,900 cubic yards of various filling material, installation of 307,023 square yards of 8-inch reinforced concrete base, and construction of 130,495 lineal feet of 7- by 30-inch concrete curb.

Six subways, ranging in length from 90 to 120 feet were constructed as well as eight bridges, varying from 45 to 115 feet in length and 50 to 105 feet in width.

Bridge Design

The North Avenue Bridge that carries the express highway over the La Salle Street and North Avenue extensions is a new modern type. It is a cantilever bridge, of rigid frame construction, buttressed in reinforced concrete. Its advantages are the use of long spans, increased head room for traffic, and lower construction costs.

According to engineers, this type of construction costs less than the standard steel frame and permits long spans without the use of heavy steel girders, making possible greater subway clearance. Each leaf of the bridge is cantilevered, and at the center a keystone of concrete is poured with allowance for expansion and contraction.

The upper level of the bridge, extending north and south for the new roadway, is 102 feet wide. The subway level is 60 feet wide. Clearance is 15 feet, 3 inches, permitting passage of double-deck buses.

The subway floor is tied across between footings, acting in tension when loads are imposed on the upper cantilever sections. The slab steel in the subway floor consists of hooked bars, welded end to end, forming a continuous line across. Abutment foundations rest on 38 caissons, 90 feet down to bedrock. The superstructure for the driveway was framed and poured in one unit. Four hundred sixteen tons of reinforced steel and 4,356 cubic yards of concrete were used in the bridge.

The ultimate aim of Chicago's traffic planners is to have the entire edge of the city bordering on the lake skirted by a wide landscaped drive along some 28 miles of lake shore, a dream that is taking tangible shape with the 15 miles of super-highway now completed.

• • • —

When Victory Comes

FROM a letter by President Roosevelt to Commissioner Edward Weinfeld as President of the National Association of Housing Officials, on the occasion of the tenth anniversary meeting of that Association in Baltimore last month:

In our determination to bring victory as quickly as may be, this nation is girding itself to devote its full energy and resources to the war task. Housing enterprises must now be directed to providing for war workers, particularly for those who move away from their homes to places of war employment. Such housing programs constitute an essential element in war production.

Through private housing and government housing we must adequately meet this indispensable need, and we must do so for all groups of workers who leave their homes to take war jobs.

In doing this, the builders must exercise their full ingenuity to conserve materials and thus help to quickly achieve our full military strength.

But our further objective must be kept constantly in mind also. When victory comes, among the many phases of the post-war program, we will join the other nations to tackle the problem of providing suitable shelter for every family the world over. In undertaking great housing programs we will create employment, we will create wealth for ourselves, and we will work toward the achievement of one of the high purposes of a world of free peoples.

Kansas City, Mo., Solves It's Water-Softening Problem

Financed Out of Normal Operating Revenue, This Plant Saves the Consumer More Than Double the Annual Softening Cost

EFFICIENT operation and thorough engineering is enabling Kansas City, Mo., to finance, out of normal operating revenues, a comprehensive water-softening program. The construction of this improvement not only allows the customers to realize an estimated $350,000 saving in soap per year, or about double the cost of the softening, but also has permitted an increase in the capacity of the filters by approximately 50 per cent.

Popular With Voters

This water-softening program has had popular support for a number of years with the voters expressing approval at the polls no less than three times. However, the improvements were not undertaken sooner because city officials considered that excessive operating costs would make the undertaking unjustifiable. But in 1940 a general reorganization in the personnel and operating procedure of the water department brought about marked savings. As a result, these improvements as well as annual operating costs are being financed out of operating revenue.

Water purification at Kansas City originally consisted of coagulation, sedimentation, and chlorination. In 1928, the city constructed a new plant of 100-mgd capacity consisting chiefly of settling basins and rapid sand filters. Today, the addition of the lime-soda ash softening plant is not only enabling the department to furnish a water with hardness reduced from 215 to only 90 ppm, but it also has increased the capacity of these filters so that the plant will handle an additional 50 mgd with the existing equipment.

Hardness of the Missouri River water, in the vicinity of Kansas City, averages about 215 ppm, the major portion being carbonate hardness. The turbidity varies greatly and averages about 2,500 ppm, but this is largely suspended matter that can be removed easily by plain sedimentation. There is virtually no color problem to contend with.

In studying the various methods of treating the water, careful consideration was given to the use of a combination lime, soda ash, and alum, and also the use of lime and zeolite. Studies indicated some savings in the lime-zeolite plan, but not enough to counterbalance the additional expense required with this equipment. Consequently, plans were completed for the use of the lime-soda ash process which was easily adapted to the existing equipment.

Studies were also made of the flocculator-clarifier type of equipment as well as the sludge-blanket type. The advantages of accelerated reaction and shortened time of retention that the sludge-blanket equipment is able to afford were discounted somewhat because of the basin capacity already available. Essentially, the softening process required only flocculator and clarifier in the present basins, additional chemical feeders, and sludge-removing equipment. A new building was necessary for chemical storage.

Reduced Settling Time

Of interest is the fact that the new plant, with 150-mgd capacity, requires only slightly more than 11 hours retention while the old arrangement with 100-mgd capacity required 17 hours. There are several reasons for this, among them

A quick and thorough mixing of chemicals is provided by a hydraulic jump in the mixing flume

the fact that careful design of the flumes to the mixing tanks includes a hydraulic jump furnishing a quick and thorough mix. Also the design includes a contact period for the chlorine at a lower pH than was previously available.

Savings to Customers

Basing figures on an estimated treatment of approximately 23,000 mg of water per year, departmental officials place operating expenses at about $178,500 per year. To counterbalance this, they place the savings per customer in soap at the conservative figure of 87½ cents per capita, or nearly $350,000 per year. This, of course, is in addition to savings in house plumbing, hot water heaters, industrial costs, as well as a more satisfactory water for consumer use.

Design of the chemical storage building includes six storage bins of 12,000-cu. ft. capacity, each capable of holding 300 tons of alum, 330 tons of lime, or 390 tons of soda ash. There are storage facilities for about 10 days chemical treatment under the maximum demands of the plant. It should be pointed out, however, that most of these chemicals are readily available to the plant from only short distances, and plant design includes equipment that furnishes quick and easy handling of the chemicals from railroad cars. Provisions for chlorination also include the possibility of using the break-point chlorination process. Storage space has been supplied for 40 to 50 containers of chlorine in ton capacities. The storage room is equipped with safety measures in case of leakage from the containers. The chlorine is conveyed by rubber-lined pipe from the two Wallace and Tiernan chlorinators to the points of application.

The Dorr clarifier for the third basin ready for test

Chemical Treating

The former system of treating water included the use of lime and alum as coagulants. In the revised plant, as previously pointed out, use has been made of lime and soda ash. This has increased the need for chemicals. Former treatment required only approximately 400 lbs. of coagulant per million gallons of water, compared with 1,600 to 1,800 lbs under the new process. This has necessitated the enlarging of the plant for additional chemical storage.

Careful studies of the existing plant have made possible very complete use of the present equipment. In fitting the softening process to the existing coagulation basins, engineers arranged for a more thorough mixing of chemicals and the efficient removal of the resulting lime sludge. Flocculators and clarifiers were constructed into the present primary basins.

The costs of this construction project totaled $868,803. These were distributed according to the tabulation shown below:

Chemical Conveying Equipment—Link Belt Co., Chicago, Ill.	$18,043
Chemical Feed Equipment — Omega Machine Co., Kansas City, Mo.	19,497
Basin Equipment — The Dorr Co., New York City	196,000
Chemical Building	250,000
Settling Basins—additions and alterations	376,960
Structural steel	8,303
TOTAL COST	$868,803

Construction plans were prepared jointly by the firms of Black and Veatch, consulting engineers, and Burns & McDonnell Engineering Co., both of Kansas City. These two firms, with Kenneth K. King, Director, and Melvin P. Hatcher, Chief Engineer, Kansas City Department of Water Supply, made preliminary investigations and studies for the project. Herbert O. Hartung, chemist for the St. Louis County Water Co., also was called as consultant regarding the efficiency of the several plans considered.

Six storage bins of 12,000-cu ft. capacity handle the lime and alum used in the water treatment

A state is never greater than when all its superfluous hands are employed in the service of the public.—DAVID HUME

The City Clerk's Job

I—Preparing for Meetings of the City Council

THE duties of the city clerk* as clerk of the common council are one of the most important and time-consuming phases of his work. These include receiving communications, petitions and notices addressed to the council; organizing the business for consideration and preparing a calendar for the council meeting; reading petitions, communications and other matters to the council; keeping minutes of all proceedings; editing, publishing and indexing the minutes; filing all original papers which appear in the record; publishing the required notices in the manner prescribed by law; and aiding or supervising persons who wish to examine the council proceedings or records. In addition, the clerk keeps records of council committees, and has duties in connection with receiving and allowing bills.

The clerk must be ready to act at all times on behalf of the governing body, and most of the important business of the city passes through his hands. Because of the numerous requests for information from the public, and requests for assistance from the council members, the clerk must follow a well-organized system of handling council records if he is to function efficiently.

Preparing for Council Meetings

The work of the clerk, both in getting ready for meetings and in preparing the record of proceedings, will be greatly facilitated by keeping a set of folders into which all new and pending business can be sorted before the council meeting. These should conform to the established order of business for council meetings which customarily is similar to the following:

1. Call to order by presiding officer.
2. Roll call. (If a quorum is not present the meeting shall thereupon adjourn, which may be to a specific date.)
3. Reading the minutes of the preceding meeting, and approving the same if correct, and rectifying mistakes if any exist.
4. Reports of committees.
5. Unfinished business from previous meetings.
6. New business, including the introduction of ordinances and resolutions.
7. Reports of municipal officers.
8. Communications and miscellaneous business.

Two identical sets of folders should be prepared with one folder in each set numbered and labeled for each order of business such as is outlined above. Each set should be identified by using different colored tabs or some other device. One set of these folders should be kept readily accessible in the clerk's desk or file, and as new matters are presented to him for consideration at the next meeting he should place them in the appropriate folder.

After each council meeting the clerk should take the duplicate set of folders, which are empty at that time, and start the file of business for the next meeting. When the minutes of the meeting are prepared, the first set of folders will again be empty and should be preserved for starting the new file after the next council meeting. Thus each set of folders is used for alternate meetings.

New Business

The clerk will receive many communications addressed to, or which must be referred to, the council. These should be stamped or marked with the date received. The clerk should examine each item and determine the subject and order of business under which it should be presented to the council. The clerk should then distribute each item to be considered by the council in the proper folder.

Some items received by the clerk, such as requests for information, advertisements, and those concerning administrative matters, can be handled by the clerk and require no council action. Such should be answered if necessary, and filed or disposed of by the clerk, or referred to the proper department or official. Such material should not be filed with material coming before the council but should be filed separately. Probably a strictly alphabetical system of filing such miscellaneous material and correspondence is the most simple system. For this purpose 8½ in. x 13 in. filing drawers and filing folders should be used, with folders labeled for the alphabetical sorting of the letters.

To aid city and village clerks who have recently taken office, and to facilitate exchange of ideas among experienced clerks as to the best methods of organizing and administering their work, an excellent Manual for City and Village Clerks has been published this year by the League of Wisconsin Municipalities. The project was aided in part by financial assistance from the Spelman Fund through the American Municipal Association.

With the permission of Frederick N. MacMillin, Executive Secretary of the League of Wisconsin Municipalities, THE AMERICAN CITY is reprinting sections of this Manual as a series of articles on "The City Clerk's Job," of which this is the first.

A practical manual for city and village clerks is of special value in the present war emergency as offering ideas which may save the time or increase the efficiency of experienced men, and more especially as an aid to new clerks who are replacing men who have gone into wartime service.

Items of business such as reports of officers or committees, petitions, license applications, or bids received may require preliminary work by the clerk before presentation to the council. This might consist of typing committee reports, checking the validity of signatures on petitions, advertising liquor license applications, and tabulating bids presented.

Occasionally the clerk will receive items which must be presented to the council, but which he should immediately call to the attention of some officer or department for their information or report. These might include matters such as a request for a sewer extension, a petition asking for street improvements, or a lawsuit filed against the city. Much time frequently can be saved by following this procedure. This permits the gathering of information on the matter before it comes before the council, and so may enable the council to act immediately and dispose of the matter.

Pending Business

The council seldom completely disposes of all business brought before it for consideration at any one session. Ordinances, resolutions, motions or other actions pending from previous

* Although the present chapter is written for city clerks, it is largely applicable to villages, since the procedure in recording the action of a village board is very similar to that of a city council.

meetings must be carefully noted by the clerk and all documents or items concerning them carefully distributed in the folders of business for the next meeting as soon as the minutes of the meeting have been prepared.

All pending and new business relating to a single subject should be combined in one file. Hence two letters and a petition requesting a new street light at a certain street intersection should be combined and placed in the folder for "Presentation of Petitions and Communications," while a second petition requesting a street light at another location should be placed in the same folder but separately from the first petition.

Copies of Pending Ordinances and Resolutions

It is useful, in the consideration of measures before the council, to have copies available for the council members, other city officials, the press, and the public. These should be prepared by the clerk by typing or duplicating copies of all ordinances and resolutions as soon as possible after introduction, or before introduction whenever the clerk has access to a final draft and knowledge of its forthcoming introduction. Council members may frequently request this service of the clerk.

If an ordinance or resolution is substantially altered by amendment or substitute, the clerk should likewise prepare copies for use in subsequent proceedings. The rules of the council may require the preparation of copies in such number and form as the council desires. Copies of measures prepared or introduced should be clearly dated and identified to eliminate confusing them with subsequent versions, or with the measure as finally disposed of.

Notice and Calendar of Meeting

Most council members are engaged in their various private occupations during a greater share of their time and occasionally are apt to overlook council or committee meeting dates. Many clerks make a practice of telephoning each council member on the meeting date to remind him of the time of the meeting; other clerks mail a form notice on a postal card, timing it to arrive on the day of or the day before the meeting. Probably the former plan is preferable since it enables the clerk to secure definite information whether a member expects to be present.

Prior to the meeting the clerk should prepare in duplicate a calendar of all business scheduled for consideration, one copy of which he keeps and one copy of which is provided for the mayor or presiding officer. Some cities may desire to have copies of this calendar distributed in advance to all council members and made publicly available. The furnishing of such calendar to the council members on the day of, or the day prior to, the meeting eliminates the necessity for giving other notice as explained above. While a calendar listing important business may stimulate council attendance, a calendar scheduling only minor matters might encourage council members to be absent.

Where calendars are prepared for distribution, there is a difference of opinion as to the extent of detail which they should contain. Some clerks believe that it is necessary to list all matters to be presented, while others would calendar only those items which would ordinarily come up for final action. The practice used should be determined to some extent by custom and by what the council desires, keeping in mind also the need for keeping those persons who are interested in pending matters informed as to when such items are to be presented.

Detailed calendars contain a complete list of matters officially scheduled for presentation at the next council meeting, including all communications, reports of committees and municipal officers, new ordinances and resolutions, as well as pending business.

If not generaly distributed, the calendar prepared by the clerk should be used by himself and the mayor or presiding officer as a guide during council meetings.

Assembling Papers for Meeting

During the interim between meetings a number of communications and documents will have accumulated in the several folders of the council meeting file previously discussed. On the day of the council meeting the clerk should check each folder and arrange the various items in the order in which he will present them to the council. Ordinarily items such as correspondence, ordinances, resolutions, and petitions should be presented under the proper order of business in the sequence in which they were received by the clerk, as shown by the date marked thereon.

However, all similar items to be presented under each order of business should be grouped together, such as all ordinances, all resolutions, all committee reports, and all communications. This enables the treatment of like subjects in order and eliminates the necessity of jumping from one type of matter to another and then back again.

Forms

At this stage it is possible to expedite and assist in the subsequent preparation of minutes by attaching prepared forms to many documents. These forms may be mimeographed or printed. By filling in the blanks and striking out parts when each item is considered by the council, these forms can be used as journal items or rough minutes, thus facilitating the drafting of the final minutes.

Several basic forms may be sufficient for normal council records. The form for reports from officers, petitions or communications, and council committee reports might provide for the file number, the subject briefly indicated, and from whom received at the head of the form in blank spaces left for the purpose; beneath this may be printed the possible actions which the council may take, as "Received and Filed," "Referred to ....," and a blank for unusual dispositions. It would prove very helpful in avoiding confusion and in identifying documents if such forms were prepared in several colors, such as buff for "Reports of Officers and Departments," light green for "Petitions and Communications," and salmon for "Council Committee Reports."

Such forms should be made as general as possible with blanks provided for entering usual actions. Special actions can be noted briefly in space provided on the form. These forms should be of uniform size and of the lightest paper stock that is satisfactory for pen or typewriter.

A separate record blank should be provided for ordinances, since these documents follow a specified form and procedure. This may be a simple printed or mimeographed sheet for attaching to the document, but preferably should be in the form of a jacket of white medium-weight stock, 8½ in. x 17 in., folded at the top so that it overlaps forward 4 in.

There should be printed on the outside of the overlapping portion of the jacket the following:

COMMON COUNCIL
of the
City of .....
By Alderman ..... File No. .....
AN ORDINANCE (or Ordinance No. .....)
Relating to .....
The mayor and common council of the city of ..... do ordain as follows:
.....

There should be printed at the bottom of the jacket, so that it can be read by lifting up the ordinance which has been stapled at the top, the following:

Read a first time and referred to the ..... Date .....

COMMITTEE REPORT

Date .....

To the common council. Gentlemen:

Your committee on ..... recommends the (adoption of the accompanying substitute ordinance) (amendment by the accompany amendment(s)) (.....) (and) (passage) (indefinite postponement) (tabling) of the foregoing ordinance.

ACTION OF COMMON COUNCIL

Date		Date
Action Deferred	Committee report (adopted) (rejected)	
Re-referred to committee	Substitute amendment adopted	
Recalled from committee	Amendment to ordinance adopted	
Referred to committee on	Ordinance read a second time and passed	
Referred to department of		

The committee report portion of the above form can be used by striking out whatever does not apply. The council action can be entered by filling in the dates for those items that are applicable. All such entries should be by typewriter or in ink.

A similar form with the proper heading for a resolution should be provided on a different color stock, such as light blue.

Ordinances and resolutions presented at council meetings should be attached immediately to one of these jackets. Generally these will be drafted by the city attorney, but in any event it is desirable that they be typewritten, making as many carbon copies as possible, with the original copy inserted in the jacket by the clerk by stapling it at the top thereof underneath the overhanging flap. These forms will contain a complete record of all actions on any measure, and will protect and preserve the document in the files.

Rubber Stamps

Some clerks prefer to use rubber stamps instead of forms for indicating council action in the belief that they are more practical and less expensive. Since a stamp is placed on the document itself, there is no danger of misplacing the record. Such stamps could read as follows: "Received and Placed on File"; "Referred to Committee on ....."; "Motion carried"; "Tabled"; "Motion rejected"; "Read a second time and passed." The stamp designating each action should also in every instance contain a space for recording the date, as "Date ....." or "..... 194 ."

(The next two installments in this series on "The City Clerk's Job" will cover Procedure at Committee Meetings and Keeping Minutes and Recording Action)

Planning for Post-War Public Works

New Laws in New York State, Massachusetts and Minnesota

NEW YORK'S new State Commission for Post-War Public Works Planning, created by a law signed by Governor Lehman last month, provides the first machinery for state post-war planning to be established by statute, the American Society of Planning Officials reports.

A feature of the planning program under the Commission is the coordination of funds and authority for keeping records and specifications on all state planning projects hitherto handled separately by various state departments. The object of this coordination is to make easily available at all times an over-all picture of employment and cost estimates, and materials and equipment needed for execution of the projects.

The Commission also is to prepare and maintain progress reports on post-war plans of municipalities in the state, and to maintain connections with federal officials and agencies concerned with post-war planning.

In setting up the Commission, the legislature also appropriated $540,000 to be spent in preparing plans for post-war constructions and authorized creation of a building reserve fund of about $320,000,000 through sale of state highway, grade crossing, and housing bonds.

The commission will consist of the director of the State Bureau of Planning, representatives of other state departments, and chairmen of several legislative committees.

In a post-war works program proposed separately by the New York City Planning Commission, recommended funds for new construction total $628,000,000, with $21,600,000 set aside for planning for the improvements. The list of projects is proposed not for budget purposes but as a planning program to be advanced as rapidly as possible in terms of financing and paper-work, though actual building may be postponed for a long time. Except for essential projects related to the war or not requiring critical materials, nearly all new municipal construction in New York City has stopped.

Massachusetts and Minnesota are two other states which have made provision for post-war planning since the war started. Minnesota's program, under an executive order of the governor, includes a $10,000,000 fund—to be built up during the war period—for constructing highways, schools, and small-unit housing.

Massachusetts' Post-Defense Readjustment Committee, composed of economists, manufacturers, workers, and planning authorities, is concerned mainly with planning for post-war employment of war industry workers.

"Giving consideration to certain post-war issues at this time does not in the least interfere with the primary objective of winning the war. As a matter of fact, to fail to prepare for certain adjustments after the war is to risk a social revolution that might easily plunge the country into chaos, and from which would emerge an entirely different America to that we have always known and now fight to maintain. We must join our allies at the successful termination of the war in providing international agreements for collective security and the enforcement of the terms of the peace."

—From a recent address by JOSEPH A. BOWER, of Montclair, N. J. (Vice-President of the Chemical Bank and Trust Co., New York), Republican candidate for the United States Senate.

Utilizing Old Equipment To Modernize a Water Plant

Coopersville, Mich., Conserves Materials Vital to the War Program While Solving a Difficult Water-Softening Problem

IN keeping with today's program of saving materials by utilizing existing equipment, the Municipal Water Works of Coopersville, Mich., recently converted two old pressure filter tanks into pressure zeolite water softeners. These water softeners replaced existing badly corroded equipment which failed to provide sufficient soft-water or to give satisfactory operation.

Exceptionally Hard Water

The city water, which comes from wells, is exceptionally hard—containing 750 ppm total hardness, a substantial part of this being iron. Prior to modernization of the softener plant, it was impossible to obtain water containing less than 170 ppm hardness from the old softener equipment. Furthermore, the efficiency of the plant had constantly decreased to the extent that it was producing only half the normal gallonage between regenerating periods. Thus it was imperative that the quality of the water be improved and that the quantity delivered be increased.

Consideration was given to discontinuing the use of well water and to purchasing unfiltered Lake Michigan water from the city of Grand Rapids. It was found that an expenditure of $95,000 to cover new intake piping from the Grand Rapids line, a new pumping station, and a new filtering plant would be required. Despite this expenditure the city would still be getting Lake Michigan water of 120 ppm hardness and would be faced with the expense of purchasing water from Grand Rapids. Such a program was beyond the financial ability of Coopersville.

Engineers were called in to make a survey of the existing equipment and to submit recommendations for its reconditioning. It was found that the pressure filter tanks, originally installed to assist in removing iron impurities, could be eliminated by the use of an improved type of high-capacity greensand zeolite able both to soften and to remove iron from the water. Comparing the condition of the tanks, it was found that while the old softener tanks were not usable, the filter tanks were in suitable condition for conversion to softener tanks.

By utilizing existing equipment, the cost of new, hard-to-get units was avoided; steel was saved; a $95,000 investment and the expense of purchasing a new water supply were avoided. Furthermore, the scrapped softener tanks, supports, and fittings brought a total of 12 tons of salvaged metal. Final details were prepared by Harold Taylor, superintendent of the water plant in cooperation with Elgin Softener Corp., engineers.

Zeolite to Remove Iron

Failure of the old softeners to provide satisfactory service brought up an interesting point worthy of special mention. Careful tests of old zeolite mineral samples showed that deterioration had taken place, due to the nature of certain mineral and chemical constituents in the water. Thus was brought out the importance of exercising extreme care in choosing the type of zeolite in accordance with the characteristics of the water. When the filter tanks were converted to softeners, they were filled with high-capacity greensand zeolite of durable physical structure. This type has a high resistance to the chemical impurities in water. Also, because of a special process in its manufacture, it is capable of removing iron impurites while delivering thoroughly softened water. The former zeolite used was not processed to take care of the iron in the water and, as a result, filters had to be used in order to remove the iron before softening.

Piping Changes

Marked improvements were made in the water-plant piping arrangements at the time the softening-plant changes were being carried out. The flow diagram of the original system shows how water was formerly pumped directly to the water tower, then through the filters and softeners to the city mains. In case of fire, the water had to pass through two small meters before going to the mains. This restricted the flow of water to such an extent that the plan was not practicable for fire protection.

The arrangement was changed, as shown in the flow diagram of the rebuilt system, so that the water is now pumped through larger meters directly to the softeners and into the city mains. The water tower, connected to the mains by a 10-inch pipe, serves to equalize the pressure, and an automatic switch attached to the pump keeps the tower full. Thus a full tank of water is always available in case of fire or emergency. Furthermore, in case of emergency, the pump line leading to the softeners can be bypassed, and the shut-off valve in the line leading to the main can be opened so that water is pumped directly to the city lines.

The original pipe lines were utilized, the course of the water being simply rerouted. A new line was put in so that the tower now "floats" on the city main. A 4-inch valve was also cut in to prevent water from being pumped directly to the tower. This valve is kept closed except in case of emergency.

The old softener tanks were first removed; then the horizontal filter tanks were lowered in place, being set up on adjustable jack legs in a vertical position. New piping to and from the tanks which are now converted to softeners was installed. To provide simplified softener operation, a single valve control was installed instead of using a cumbersome nest of valves as before. The backwashing and brine rinse operations are controlled accurately and efficiently by the use of solo valves.

Old Brine Tank Remodeled

The old brine tank was not in a usable condition. Rather than purchase a new one, the end of one of the old softener tanks was made into a brine tank. Considerable inventive skill was shown by Mr. Taylor, the water works superintendent, in perfecting a brine gage which can be read from any point in the water-softener room.

The converted softeners operate on a new principle of water distribution and collection. Installed in the top of each tank is an Elgin "Double-Check" manifold system equipped with double-check valves and strainer nozzles permitting the use of a far deeper bed of zeolite without zeolite loss. More zeolite means more softening capacity. The arrangement also provides a more effective backwashing and more efficient regeneration.

Using Deep Zeolite Bed

Formerly, when a zeolite mineral bed as deep as that placed in the tanks at Coopersville was used in an attempt to increase capacity, it would simply be washed out during backwashing. However, by means of the double-check valves and strainers of this new-type manifold system, escape of zeolite is prevented. A new lower manifold system with graded quartz gravel underbed was also installed in the bottom of the converted filter tanks.

"Red Water" Eliminated

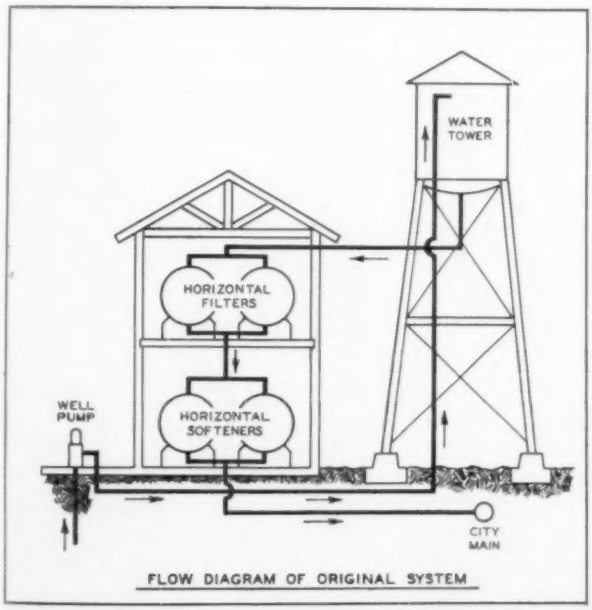
Corrosive tendencies of the well water formerly caused considerable trouble. In addition to causing deterioration of tanks and piping, this corrosive action resulted in a "red water" condition. Housewives complained of red stains on enamel fixtures and laundered articles. To prevent this condition, Elgin Corrective Treatment is added to the water in minute quantities. The cost of this treatment average about one dollar per day.

No Increased Softening Cost

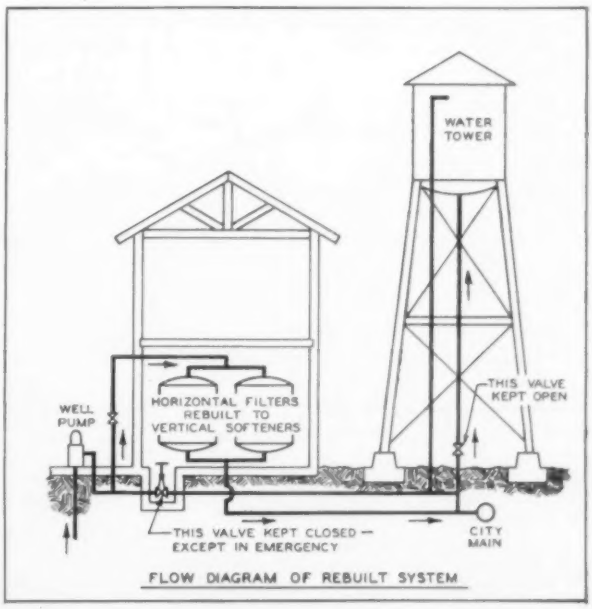
Following standard municipal water-softener practice, 85 ppm water is supplied by blending softened and unsoftened water. This is done automatically by means of a proportioning valve. The remodeled softener system delivers twice the former gallonage per regeneration (double the former capacity), and the water is zero soft. Yet the cost of regenerating salt remains the same. This is because of the increased operating efficiency of the "double-check" softening principle as compared with the former horizontal softening operation.

Without incurring a heavy financial obligation, the city is now supplied with an excellent water that is both palatable and soft. The popularity of the water is demonstrated by a marked increase in the amount of water used. The increased revenue is helping to amortize the debt incurred.

The cost of this modernization program was $9,500, or one-tenth the estimated cost of the alternate supply.



In the original system, all water flowed from the tower through the plant to the city main. Separate filters were required for iron removal


WATER TOWER
HORIZONTAL FILTERS REBUILT TO VERTICAL SOFTENERS
WELL PUMP
THIS VALVE KEPT OPEN
THIS VALVE KEPT CLOSED — EXCEPT IN EMERGENCY
CITY MAIN
FLOW DIAGRAM OF REBUILT SYSTEM

The revised plant receives water directly from the pump and can be by-passed in case of an emergency. An improved zeolite eliminates the need for iron-removal filters

A War Housing Policy Emerges

Maximum Use of Existing Shelter: Provision of Essential New Shelter with Minimum Use of Critical Materials: Coordination of WPB and NHA Activities

• • • —

HERE is THE AMERICAN CITY'S *attempt to summarize the new war housing policy of the Federal Government now rapidly crystallizing through the National Housing Agency in consultation with the War Production Board and such nation-wide professional and civic groups as the National Association of Housing Officials and the National Committee on the Housing Emergency:*

1

Shelter for war workers at home is recognized as a major essential to victory abroad. Even if humanitarian considerations could be ignored in this War for Humanity, productive efficiency requires that places for living be provided simultaneously with places for working.

2

To avoid nonessential use of critical materials, it is estimated by National Housing Administrator John B. Blandford, Jr., that approximately half the additional rooms and dwelling units needed in war production areas must be provided through maximum use of the housing we have. This means that, through local Homes Registration Offices and otherwise, all existing and potential housing facilities in war industry communities must be discovered and made available to war workers. Where voluntary efforts fail, compulsory billeting may have to be resorted to.

3

Reconditioning of substandard dwellings and conversion of old single-family houses for multi-family use can help to meet the housing shortage in many communities. As Howard Strong, of the Homes Utilization Division of the National Housing Agency, pointed out at the annual meeting of the National Association of Housing Officials in Baltimore last month:

"We are approaching the point where the cost in critical materials for housing is the most important factor. Therefore, when reconditioning and conversion can produce the same number of adequate dwelling units at less cost in critical materials than new housing, such remodeling is, from this standpoint, preferable to new building"

4

Such increased uses of existing or remodeled shelters must be undertaken not only in the immediate neighborhood of war industries, but also within reasonable commuting distances where adequate transportation can be provided by railroads, trolley lines, buses, or group travel by automobile.

5

Where the housing needs of war workers cannot be met by the methods suggested in the three preceding paragraphs, new shelter must be promptly planned and speedily built. For minimum use of critical materials, dormitory communities for men and also for women will be provided increasingly and dormitory apartments for married couples without children where both are likely to work in nearby plants. To the extent that the in-migration of war workers requires accommodations for families with children, new housing should, if and where practicable, be planned for some needed use after the war. To the extent that private industry, if granted adequate priorities, cannot guarantee prompt construction of such housing, increasingly on a rental rather than sale basis, the Federal Public Housing Authority must be provided with adequate funds for this task.

6

The magnitude and urgency of this phase of the war production task must not be minimized. Its gravity was given much-needed emphasis at last month's NAHO meeting by Herbert Emmerich, Commissioner of the Federal Public Housing Authority:

"In spite of the good work that has been done, in spite of the unprecedented volume of residential construction in 1941—the fact remains that the lack of housing in the spring of 1942 is second to none as a threat to the achievement of our military production objectives. I have had the opportunity in the production agency to observe the rapidly accelerating development of this major problem. And now with the even more startling first-hand observation in the housing agency, and without wish to be an alarmist, I feel obliged to say to you that we are woefully behind schedule in providing for the great army of migrating workers—workers who must be provided with shelter and decent human facilities if our army and navy and air forces are to be sustained and are to prevail. *We must put five times as many houses under construction a month as under the slum-clearance program and finish them in a third the time.*"

7

The cooperation of local housing authorities and other divisions of local governments will be increasingly sought by the Federal Government. To quote again from Commissioner Emmerich:

"It is the firm policy of the Federal Public Housing Authority to use the facilities and experience of local housing authorities wherever possible for both development and management. War housing which was originally built directly by the government will be turned over to local management wherever local housing authorities exist. It is also our policy to solicit the advice and assistance of all agencies of local government in planning and operating projects. We understand very well how intimately such projects affect the welfare of communities and we are anxious for these communities to make their wishes known."

8

One of the difficult problems confronting local housing authorities is what to do with tenants in low-

rent housing projects to whom the war has brought substantial wage increases. The flexible system of graded rents recommended by FPHA permits tenants to stay in projects until their income amounts to 20 per cent more than the top income limit for admission. When their income reaches this point they are required to move if decent homes provided by private enterprise are actually available at rents within their means. If decent homes are not available they are not forced out into the slums, but are allowed to continue in the public project.

When incomes increase, rents are increased at the end of the year, but are never raised beyond an unsubsidized economic rent or beyond local rents for comparable dwellings.

Under war conditions increased family incomes may also disappear. A formerly unemployed member of the family who found a job may be drafted or get married, or increased earnings due to overtime may disappear if a factory goes on a three-shift basis. In such cases, rents are adjusted downward, by charging the family a rent appropriate to the grade within which its lowered income falls.

9

The various agencies of the Federal Government can avoid needless accentuation of the housing problem in so-called defense areas by directing future contracts and sub-contracts into cities where available labor and housing surpluses exist and where industries could be converted to war production.

10

More effective coordination of WPB and NHA activities is a definite aim of both these agencies. To attain this objective the present system of priorities may have to be superseded, as to some of the most critical materials, by a system of allocations. The demands of the naval, military, and air forces for such materials must allow for housing to such extent as may be essential for the production of these very materials, thus increasing the speed and efficiency of the successful prosecution of the war.

11

To accomplish these objectives will involve quite a degree of temporary inconvenience. But, as Mr. Strong pointed out at the above-mentioned NAHO meeting:

"We are fighting a war to maintain those democratic principles and processes which have given us the increasing social and economic values of the past 160 years. We may find it necessary to modify or to relinquish temporarily, and by the same democratic process that created them, some of these fruits of democracy that we may insure for all time the basic principles of representative government.

"And let us not forget that the war process itself will bring us certain gains. Our communities, because of the war housing program, are gaining a fuller understanding of the basic importance, in community life, of good housing for every citizen, and they are coming to a fuller realization of the responsibility of *all* citizens to provide good housing for *every* citizen."

12

But in our temporary acceptance of lower standards, where such will contribute to the speedy winning of the war, we must beware of reactionary propaganda parading as patriotism. As Commissioner Emmerich said in his NAHO talk:

"Even more serious than a housing-as-usual attitude is the wave of reaction which threatens all standards of decency, amenity, and consideration for the health, welfare, and morale of the civilian population including the industrial army—as much needed in accomplishing high production rates as these factors are needed for high military efficiency. The patriotic American workers who are straining overtime to accelerate production rates need decent and sanitary shelter, with opportunity for rest and relaxation and recreation and the necessary human amenities. We have today the best fed and housed army ever, with great care for health and recreation. Certainly our industrial army needs no lower a standard. And if there are those who see fit in wartime to overlook the human considerations, I assert that such standards are necessary from a hard-boiled production angle. Without decent, healthful shelter and facilities, simple though they are, there will be terrible labor turnover and production lags."

13

And, finally, to quote from the recent talk by Administrator John B. Blandford, Jr., of the National Housing Agency, before the National Committee on the Housing Emergency, as reported in the May issue of THE AMERICAN CITY:

"The establishment of the National Housing Agency was essentially an action of unification. It was a move designed to close ranks and strengthen the housing sector of the war front. It symbolizes the total approach to war housing. It provides an opportunity for the full mobilization of private and public resources, of banks and savings and loan institutions, of realtors and public housing agencies, of architects, engineers, contractors and workers, of local, state, and federal officials to meet the need of housing the in-migrant army of war workers. Time is short, and labor and material must be conserved. We will all do the best job possible.

"When this war is won, when victory is clearly within our reach, we will then face the constructive task of clearing up the ravages of war and take up the stimulating task of rehousing Americans. For this job we will be better equipped because of the experience gained, because we will have learned to work together, because we will have wider horizons and a better feel for the things that are important."

President Roosevelt Asks Congress for $600,000,000 More for Public Defense Housing

In a message to Congress on May 27, President Roosevelt estimated that 1,600,000 workers would migrate to new war jobs during the year beginning July 1, and asked Congress to increase the authorization for public defense housing by $600,000,000. As another aid toward meeting the needs of war workers for whom existing shelter is not available, the President had signed on the previous day a measure increasing by $500,000,000 the amount of private loans for defense housing which the Federal Housing Administration may guarantee.

"This war," the President's message asserted, "involves a total national effort and industrial mobilization. Industry cannot effectively mobilize and plants cannot expand with sufficient rapidity unless there are enough houses to bring the worker to the job, keep him on the job and maintain his efficiency and morale. The allocation of war funds for the shelter of the men and women leaving their homes to serve our war industries is a wise and established national policy. That policy should continue."

Indiana Studies Facilities for Suburban Sewerage

Sewer Districts, Financed by Service Charges, Should Help Relieve Problems in Suburban Areas Now without Sewerage Facilities

By B. A. Poole
Chief Engineer
and
Joseph L. Quinn, Jr.
Senior Sanitary Engineer
Indiana State Board of Health

FORTY years ago the farmer went to town to get typhoid fever. Today the city dweller goes to the country to contract the disease. Ten years from now both the city dweller and the farmer may contract the disease from the suburbs—that buffer area developing between the cities and the farms.

Subdivisions around our larger cities have sprung up like mushrooms in the past few years. They are almost universally tenanted by people who have gone out of the city to escape the high tax rate. By doing so, they have also escaped the benefits of a constantly safeguarded public water supply, public sewerage, police protection, fire protection, street maintenance, and a host of other assets.

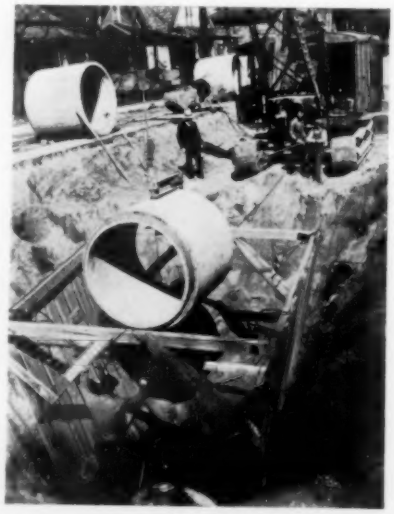
Objections to Private Sewage Disposal

In Indiana most sections are blessed with a plentiful supply of ground water. Consequently, it is possible to drill a well for each house as the house is built. This often appeals to the developer. Even if the public water supply is available, or if a community supply can be developed at less cost per lot than the individual supply, there is no investment in a water supply prior to the sale of the lot, and then the investment is made by the builder of the house. Arguments for a common water supply for the area are defeated by counter arguments that there will be no one who can be held responsible for maintenance and operation once the entire development is complete.

Sewage is nothing more than used water. Hence the provision of a water supply automatically creates a sewage disposal problem. Here again the provision of individual sewage-disposal systems is popular since the individual home owner carries the cost of this method of disposal.

The private sewage-treatment system almost invariably consists of a septic tank discharging to an open ditch, a drain tile, a cesspool or an absorption system. This sort of installation creates numerous problems.

First, the owner may be establishing a means of contaminating his water supply by his own sewage. The State Board of Health has attempted to eliminate this difficulty by requiring at least 50 feet between a water well and any sewer, septic tank, or cesspool on FHA-approved houses. Fifty feet is generaly agreed to be the minimum safe distance between a source of contamination and a small water supply, although fecal contamination has been recovered in ground water 230 feet from its source in one group of recent experiments.



Laying a 50-inch pipe section in a Goshen, Ind., sewer system development

Second, the owner's sewage may contaminate his neighbor's water supply.

Third, the septic tank effluent may find its way to the surface of the ground, causing a neighborhood nuisance and health hazard. An underground absorption system is no guarantee of freedom from trouble. The writers have personal knowledge of one community that is now experiencing considerable discomfort and trouble because the older absorption systems no longer function and sewage has broken out on the ground surface in numerous places.

Fourth, in areas where the ground water table is high, no type of private disposal will function satisfactorily.

Possible Solutions

The obvious solution of these problems is the installation of a common water supply and a sewerage system. Since this discussion deals with sewerage facilities, subsequent remarks will be devoted to this phase of the problem, although from the writers' standpoint the provision of a safe water supply is of equal importance.

For most practical purposes, a built-up area adjacent to a city is just as much a part of that city as an area inside the corporate limits. Odors and diseases are no respecters of corporate lines. In most instances it is logical that the sewer systems for adjacent or nearby subdivisions, or for corporations for that matter, become a part of the master sewer system of the parent municipality. The parent municipality must develop an interest in the sewerage problems of the adjoining subdivisions if portions of its own system are not to suffer as much as the subdivision.

One solution is annexation of all the outlying area to the parent city, thereby enabling improvements to be financed and handled as regular city improvements. However, one has to merely consider the fundamental reasons behind development of the subdivision or outlying municipality to appreciate the practical difficulties which face any move for wholesale annexation.

Sewerage Districts

Many of the larger cities of the country have recognized the suburban sewerage problem and are permitting the use of their sewers and sewage-treatment works by outlying subdivisions and municipalities. This policy was probably not adopted until possibilities of annexation had been explored and rejected. Several examples are Milwaukee, Cleveland, Detroit, Buffalo, Columbus, and St. Louis. The procedure under which these cities operate varies greatly. Some have metropolitan sewerage districts which have been authorized by special legislation. Others—in fact, most of them—operate on a purely contractural basis. Contracts ordinarily take into account the parent city's original investment in intercepting sewers and treatment works, as well as the costs of maintenance and operation of the system. In some instances, the outsider pays the same rate as the resident of the parent city; in other instances, he pays slightly more. In most cases payments are on a volumetric basis rather than on a footage or assessed valuation.

The logical time to consider this outside sewage problem is when the intercepting sewers and sewage-treatment works of the parent municipality are being designed and constructed. Most of the newer sewage-treatment plants are financed by revenue bonds which are amortized by a monthly service charge levied on all users. In such cases it becomes a simple matter to establish an equitable rate for the outside user at the time the whole rate schedule is being considered. Cases arising after the treatment works are in operation can be handled by using established rates as a basis for negotiations. If the parent city has no sewage-treatment works or if the treatment plant has been financed by taxation bonds, it is still possible to enter into a contract with an outside agency for the handling and disposition of sewage and waste. It is the opinion of the writers that the most practicable means of doing this is through the establishment of an equitable rate based on volume. Naturally this rate must take into consideration the investment of the parent city or at least the outstanding portion of the investment in the works to be used by the outside agency. The fee may be paid monthly, semi-annually, or at any other time satisfactory to the contracting parties. It can be raised by the outside agency in any manner satisfactory to it.

Indiana's Solution

The suburban sewerage problem must be recognized by municipal officials as one of joint concern. A certain element of give and take must enter into its solution on the part of the municipality and the outside agency, whether it be another municipal corporation, a realtor, or an individual home owner.

Solving it will be facilitated by the enactment and use of metropolitan sewer district laws, and also the enactment and enforcement of more drastic zoning and planning regulations.

Replanning studies of many large systems should be undertaken *now*.

It is unfortunate that the entire suburban sewerage problem is not as easily solved as the above discussion might indicate. Possible legal complications in certain first- and second-class cities have already been mentioned. The reasoning of the above paragraphs has also been predicated upon the plan to bring the sewage from the outside agency to a trunk sewer of the parent municipality which is large enough to handle the additional sewage.

Many of the suburban areas which are causing the most trouble do not have sewers, and under existing conditions it is impossible to raise money to construct them. The State of Ohio has had, for years, a law which enables county commissioners to issue special assessment bonds for the construction of sewer systems in unincorporated areas. The law established a procedure quite similar to Indiana drainage procedure. It has worked successfully in Ohio and, since it furnishes one additional tool for the construction of sewer systems, the authors favor enactment of a similar law in Indiana.

Need for Comprehensive Engineering Study

It is the feeling of the authors that this is the appropriate time for a comprehensive study of the sewer systems of some of our larger municipalities. It seems particularly timely that the job be considered now, when public works construction is more or less at a standstill, and we are planning a public works reserve. The study should be made by men experienced in this type of work and it should include the parent municipality and environs. From it should evolve a master sewerage plan which can be used with minor revisions for fifty years to come.

A comprehensive engineering study of the sewerage problems of any of our larger municipalities and environs will depict the desirability and necessity for a metropolitan sewerage district. Indiana needs a law which will enable the creation of such districts throughout the state. Such a law should be broad enough to cover any existing situation.

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Taxpayers Polled

Taxpayers of Montclair, N. J., wealthy residential suburb of New York City, again this year helped their city council make up the annual budget. As in 1939, when the experiment first was tried, a postcard ballot of public opinion was made to determine whether certain municipal services should be dropped or taxes raised to pay for them.

Results of the poll showed residents of Montclair wished to retain their community services despite the fact the community, with a declining population and tax base, is faced with an increase in taxes, according to information to the International City Managers' Association.

Berwyn, Ill., Rebuilds Its City Streets

Eleven Miles of Old Asphalt Pavement Take on New Life

As part of a comprehensive program to renovate existing streets, Berwyn, Ill., completed last year the repair and resurfacing of 11 miles of old asphalt pavement. By this work the city was able to salvage old paving that was rough and deteriorating badly.

Preliminary investigations showed the asphalt to be badly cracked and the curb to have settled unevenly, no longer providing adequate drainage. Intersections were constructed with raised cross-walks which provided bumpy and unsatisfactory riding surfaces. On recommendation of the engineers, it was decided to replace the existing curbs, remove the raised cross-walks, and resurface the entire paving to a more rideable grade. Although the existing concrete base was not built in accordance with modern standards, the belief was held that it would be adequate to carry residential loads common to this district.

Awarding Contracts

On July 22, 1941, the city of Berwyn, through its mayor, Anton J. Janura, called for bids to repair curbs and gutters, to remove old cross-walks, and to prime and resurface the existing streets. This was awarded to the Municipal Paving Co., Oak Park, Ill., under the provisions of the motor fuel tax laws of the state of Illinois. Illinois laws provide for the distribution of motor fuel tax income equally among state, county, and municipal governments.

Shortly thereafter, the contractor began the removal of the cross-walk and curbing. These raised cross-walks formed a nuisance as well as a hazard to traffic. Eight air-compressor units, each driving two pneumatic paving breakers,

Irregularities in the paved surface come out along with unserviceable curbing

were used in this operation. This work was carefully coordinated so that repair work could move ahead smoothly.

In replacing the removed curb and gutter and cross-walk, the contractor used a 27-E Ransome paver. The paver was set up in a convenient location in a manner so that trucks could wet-batch the concrete as needed. This concrete was mixed and placed in strict accordance with Illinois Highway Department standards.

After the concrete had thoroughly cured, the contractor began his resurfacing work on the asphalt pavement. The existing surface was swept carefully with a power broom to remove all dust and to allow the priming coat to thoroughly bond to the existing asphalt. RC-1A cut-back asphalt was placed on this surface at a rate of ¼ to ⅛ of a gallon per square yard. Specifications called for a 48-hour curing period and required all spots damaged by traffic to be repaired.

After the curing period, the contractor proceeded to raise all depressions and irregularities in the pavement with the use of a hot binder mixture composed of 70 per cent stone, 25 per cent sand, 5 per cent 70-Penn. asphalt. This was hauled to the pavement in trucks and placed by hand methods. It was first rolled with a three-wheeled 10-ton Huber roller, and finally with the two 10-ton Erie steam rollers.

After approximately a mile of such work was completed, the contractor dropped back to the starting point and began laying the sheet-asphalt surface course. This was plant-mixed and was delivered from one of the Warren Bros. plants located in Cicero, a short distance away. This material, averaging about one inch in depth, also was placed by hand methods. To speed the work, two crews of about 30 men each were organized, each crew having three rollers available. Proportions of the mix were 10 per cent 70-Penn. asphalt, 15 per cent limestone dust, and 75 per cent sand.

These crews were able to lay approximately 9,500 tons of material in 20 working days. The surface, thus completed, produced the finished roadway and economically rehabilitated eleven miles of street that was previously rough and generally in poor condition.

Work Completed Promptly

Due to efficient operating conditions and close cooperation on the part of all parties, the project was completed within two months after the date of letting the contract. The cost of the project was $108,000, or approximately $9,850 per mile of 28-foot street. This amount covered all repairs to curb and gutters, eliminating all old raised cross-walks in the old pavement, and complete asphalt resurfacing.

Hancock Engineering Co. of Chicago handled the design and supervision of engineering on this project. Inspection of materials and plant supervision was by the Isaac Van Trump Testing Laboratory, also of Chicago. Stanley E. Arnold was Supervising Engineer representing the Illinois State Highway Department, and Anton Pav, Commissioner of Public Works, represented the city of Berwyn.

Better Cities After the War

By CHARLES S. ASCHER
Consultant, National Resources Planning Board

THE war has given a new intensity to thinking about the future of cities. In Great Britain the impetus seems to be the desolation wrought by enemy bombers; it has led already to organization for post-war rebuilding of cities. Yet the facts suggest that this is basically a resurgence of the spirit—except for a few places like the centers of Coventry and Plymouth, the physical destruction has been too sporadic to offer substantial cleared areas for comprehensive replanning. Though the United States hopes to be spared the rain of death from the sky, there is the same ferment at work here: the determination that the communities of the future must be nobler embodiments of the democratic respect for the worth of the individual, if our war effort is to be justified.

Let us not quail before the magnitude of the task. A nation that can organize itself for the conduct of war, as the United States is now organizing, should have no lack of confidence in its ability to carry out any task that it wills. We shall be left after victory with the greatest industrial capacity we have ever had, with more skilled workers and better mobilized technicians. The rebuilding of American cities is not a task for a year or a decade. But if we think through our problems, discuss and determine our policy, prepare our plans, sharpen our tools, and frame our organization, we can seize what may be a unique opportunity to remold our cities, to provide a creative, healthful, and satisfying living and working environment for a people afforded economic security by full employment.

Objectives

These, then, should be the guiding ideas for rebuilding cities:

1. Seek the widest and soundest economic base for the city, so that the city dweller is afforded the maximum opportunity for full employment and the highest possible real income.

Some conceptions that must underlie a concerted effort to remake our American cities after the war are set forth by the National Resources Planning Board, in a pamphlet by Mr. Ascher released May 18, excerpts from which constitute this article. As a foreword points out:

"The greatest task before the American people is to win the war. To this end our utmost energy and our best thought are dedicated. Yet to sustain us in this task it is important that we begin to shape a picture of the kind of world in which we hope to live after victory, to spur us on and to redeem this prodigious effort. It will call for understanding, good will, and cooperation to outline this picture and to work toward its realization."

2. Plan for city rebuilding by the square mile, not by the square block. Create neighborhoods for living, for young and old, for the free mingling of all groups in a democratic society.

3. Deal with the whole urban community; be not limited by artificial municipal boundary lines, either in rebuilding or in meeting the costs of metropolitan services.

4. Make the resources of the city and countryside more freely available to urban and rural dwellers alike.

5. Urban land now loaded with outworn structures and with unrealizable claims—of past debts and taxes and hoped-for profits—must be made free again, so that it can be fitted into the pattern of the future.

6. Bring to bear more powerfully the sovereign powers of government: make public land acquisition more effective, use taxation as an incentive to city rebuilding, devise more creative controls of land through the police power.

7. Bring together at the earliest possible moment in each community available facts and sound judgments to outline the directions and forms of community development. Organize the thought and the programs of local, state, and federal officials and of citizens and civic groups for the continuous improvement of this pattern. Provide the necessary coordination of planning locally, regionally, nationally.

8. Make the construction industry a truly free enterprise: release it from monopolies, restrictions, and disorganization, so that it can undertake city rebuilding at low costs and with steady employment at reasonable wages, on a scale hitherto unknown.

9. Study new methods of building, new community patterns; train men and women with new skills for city rebuilding, both in the government and at research and training centers throughout the country.

10. Recognize the national interest in the well-being of more than half the people who live in cities; realize the limitations upon city resources to overcome the errors of past generations; establish the bases of federal aids to city rebuilding.

11. Set as one of the aims for which a free people will fight, the remaking of American cities in our generation as places to live, work, play and worship, worthy of a democratic society.

[*In the pamphlet from which the foregoing conclusions are quoted, the various objectives are briefly discussed. Significant excerpts follow:*]

Large-Scale Rebuilding

If we are to make our post-war cities true temples of the four freedoms, there is one central idea which, today as never before, has the acceptance of social scientists, groups of property owners and investors, and of public officials. The replanning and rebuilding of cities must be on a large scale; an isolated, uncoordinated attack, the replacement of a group of structures here and there, will not do. Our replanning must be bold, fresh, and imaginative. In the desire to make work, we must not rush in with projects that merely repeat or perpetuate bad patterns of the past—either physical or institutional. If performed under public auspices, the piece-meal approach will not be acceptable to the citizens either as a satisfactory expenditure of their funds or as an adequate realization of what they hope their government will do for them. If carried on by private enterprise, it will not be economically supportable.

Better integration of metropoli-

tan planning, indeed of metropolitan government generally, is thus one of the guiding ideas for comprehensive city rebuilding.

Neighborhood Planning

Even within the city it is increasingly agreed that our scale of rebuilding must be large to meet the objective of providing a physical basis for a satisfying community life; we must plan our rebuilding, not by the square block, but by the square mile. If this conception be accepted, we must clearly have an idea to guide us that will give us more than rows of sanitary barracks to replace rows of unsanitary hutches. The guiding concept which is gaining wide acceptance as an ideal in city rebuilding is that of the neighborhood: an area freed from the disruptive forces of through traffic, with a system of circulation designed for its internal needs, supplied with its own play spaces, schools, health center, places of assemblage for worship and civic discussion, its own retail shops.

The city has always been exciting to those with the vigor and strength of early manhood. But cities must be brought down to a scale that makes them places for good living for young and old. The neighborhood is urged as the natural unit for the child and the older person as well as for those in the prime of life. The neighborhood-in-the-city must be of a size and character that will not dwarf its inhabitants into anonymity, but will provide a stage of sufficiently intimate scale so that the citizen can master it and play his role with satisfaction.

With the acceptance of the neighborhood concept, we can free ourselves from the identification of "slum clearance" with the provision of "low-cost housing" which crept into the first legislation making federal financial aid available for housing in 1932. We can propose the tearing down not only of substandard residences, but of decrepit warehouses and dank sweatshops; we can plan to replace them by schools, playgrounds, parking lots, markets, shops, residences, work-places—all the appropriately placed elements of integrated communities.

Indeed, the new way of life which the post-war city can afford will be embodied in types of buildings which have seldom existed. We must take care that our lists of post-war public works do not consist merely of the familiar courthouse and school. There must be provision for the health and welfare centers which may become as familiar as post offices—with their well-baby clinics, their nutrition advisers, their employment security offices for job registration and consultation about benefits. There will be buildings to serve new types of vocational education, groups of buildings combining the functions of school, library, and recreation center for children and adults.

It is fair to say that all groups concerned with urban redevelopment have recognized during the last decade the need for new tools—legal, administrative, financial—for city rebuilding. A search must be launched for ways of bringing to bear more effectively the trinity of sovereign powers: eminent domain, taxation, and the police power. Some tools have not yet been fully fashioned, but they must be quickly prepared.

By and large, American architects and real estate men have not taken adequately to heart the late Sir Raymond Unwin's classic warning, "Nothing Gained by Overcrowding." Government-aided housing schemes of the past decade have shown that large-scale planning makes it possible to use less than one-third of the site for buildings, instead of the two-thirds permitted under our older restrictive building ordinances; yet in some places there has been too great a readiness to boast of low-land coverage without raising the eyes above the ground to see how high the structures towered, and how many people were crowded in each acre.

Large-scale planning will permit less crowding without undue dispersal because of a curious fact about many American cities: the substantial proportion of building lots within the city which are put to no use at all. They are scattered, they do not of themselves furnish sites for significant development; only if we rebuild by the square mile will they be swept into use. Furthermore, we can free ourselves from the prison bars of the gridiron street pattern without undertaking the complete reconstruction of our underground public utilities; skillful site-planning can yield a high salvage value for our large investment in water and sewer lines.

One other principle should serve as a guiding idea in our large-scale rebuilding: we must avoid a pattern of stratification, whether by incomes, occupations, or otherwise, which will produce self-contained colonies either of manual laborers or intellectuals or enterprisers, which will perpetuate areas marked as the exclusive preserve of persons of one language group or national origin. The challenge to our city rebuilders is to provide the opportunity for free mingling of all groups in our democratic society, without forcing a drab uniformity or the loss of those cultural diversities that have enriched our urban, indeed our national, life.

Public Works and Private Enterprise

If effective city rebuilding is to be achieved, it is of highest importance that proposals for public works be related to the work that we expect private enterprise to undertake. How can the city engineer be certain that his sewer will be neither too large (and wastefully expensive) nor too small (and inadequate) if he does not know the density of residential developments proposed for the area? Will the superhighway, while facilitating through traffic, render ineffective a scheme for an integrated neighborhood, much of which would be built by private enterprise? Or, on the other hand, will a publicly aided housing project lie athwart a needed arterial highway?

It is essential that the various governments serving the people of a city recognize their common constituency. Just as highways built with public money and residences built with private funds must compose one finished community, so the objectives of each level of government and of the various departments in each level must be brought together and considered as a composite plan for the area. The information gathered by all the federal agencies would be of enormous

value to the local planning officials if only it were pooled. Once those distinctive local idiosyncracies which local officials best understand are explained to one federal agency, this information should be provided for all. The more effective coordination of federal data and programs of concern for community planning is a problem to which the National Resources Planning Board hopes to address itself; it is a problem that must be dealt with in Washington, in the field offices of federal agencies, and in the city where its impact is felt.

Taxation as an Incentive to Rebuilding

We have not realized adequately the power of taxation as a tool for the refashioning of cities, apart from the raising of revenue. Reports of the National Resources Planning Board have already called attention to the role of assessments for benefit, property value increment taxes, and differential taxes which bear more heavily on land than on buildings. Coupled with other controls they can be of great help in guiding the development of the city into desirable patterns.

Studies in other cities might reveal, like a recent study in New York City, that the city's expense budget was equaled by the expenditures made within the city by other units of government—federal, state, and special authorities. None of these other expenditures was supported by property taxes. If this condition is generally true, it demands that the federal and state governments, if only in the interest of effective use of funds derived from their whole constituencies, should evidence greater interest in efficient and orderly urban development and conservation. It also suggests that indirect ways have been found for tapping the tax-paying ability of those who have fled beyond municipal boundaries, while still earning their livelihood in the central city. These funds should be made available in the slums not only for relief payments, but for more foresighted thoroughgoing resurrection of these areas. State and federal government departments are not organized to provide, alone, unified redevelopment of entire areas. In any redevelopment, municipal government must play an important role, supported by a balanced, diversified tax system in which the federal and state governments must play their part.

These considerations should lead us to see more clearly that the unit of government best equipped to furnish a service may not always be best equipped to raise the money to support it; we must not cramp our thinking by assuming that a shift in the source of taxes necessarily means transferring the activity. Thus, the state and national interest in equal educational opportunity for all may justify the support of secondary education from sources other than the real property tax, without depriving the local community of control of its schools. The property tax funds thus freed could be used for improved services and redevelopment.

Comprehensive Local Planning

Thirty years of experience have shown us that for large-scale imaginative re-creation of our cities, we need sharper and more powerful tools for local planning. The prevailing pattern of the appointed planning board of unpaid citizens was established in a day when there was less integration of local government, when fewer cities had a functioning executive, and when the only apparent guarantee of immunity from short-run pressures was to insulate the planning group from operating officials. As a result, in most communities, the planning board has not commanded the respect of the local government even to the extent of receiving financial support adequate for a competent staff; and its members have often sensed their removal from the scene of action to the point where they have lost interest in their own program. Revitalized local planning must find its place at the right hand of the council and the municipal administrator, proving its helpfulness by providing the data upon which to formulate action and by aiding in the task of coordinating the many activities which together constitute city rebuilding.

Post-war demands to put men and materials to work to rebuild cities cannot find us seeking postponement because comprehensive plans are not ready; on the other hand, it would be tragic to plunge into a series of unplanned public and private works. We must be in a position to bring to bear at the earliest possible date the available facts and the judgments of those who know their communities—officials, civic and social agencies, citizens—to produce at least rough sketches of the directions and forms which community development should take; then, as time and facilities warrant, we can progressively fill in gaps in our knowledge and refine our plans. The National Resources Planning Board is now arranging with several cities to launch experiments in this type of progressive planning. A community is doubtless best prepared to guide its own future development with exactitude if it has a complete plan based upon a full set of underlying surveys, data, and maps. Nevertheless, up to 1941 only 221 American cities of the 412 with population over 25,000 had initiated this complex and time-consuming process. It is essential that hundreds of other cities take the first steps toward a complete plan. Indeed, it may be necessary to remind even the few cities in possession of a master plan that the proposals there set down are in need of continuous revision.

The Local Programming Office, which the National Resources Planning Board co-sponsors, is conceived as an inventory and program; it requires for its validation a planning base. It affords the opportunity for some significant experiments, which, in simplifying the approach to planning, will still recognize that in some of its phases the planning process is an art requiring skilled judgment.

National concern may dictate intervention by the Federal Government to stimulate city rebuilding, but only local initiative and leadership can give direction to the community's future growth. Despite the demands of the war effort on the time and energy of all of us, it is none too soon for groups in every city to organize in cooperation with their own officials for community self-analysis, for the thought and study needed to guide post-war rebuilding.

About . . . Water Rates

An Illustration of How "Flat" a Flat Rate Can Be

By Henry W. Taylor

IN analyzing the reasons and economies underlying modern rate making, let us trace the evolution of a typical small water supply.

The original water supply in this community was of a character to discourage excessive use. The system consisted merely of a surface water supply with a storage reservoir and a distributing system, parts of which included weak piping. At this stage of the development, flat rates, based on fixtures, served their current purpose.

Outgrowing the Flat Rate

However, population growths and demands for higher standards made it necessary to develop the water system by the addition of a second source of supply, a second storage reservoir, pumps for delivery of the additional supply to the original reservoir, improvements to the original reservoir, a complete modern water-filtration plant, and major improvements to the distribution system. These changes naturally led to additional fixed charges and operating costs which were not contemplated when the flat rates were formulated.

An analysis of receipts and expenditures indicated that the income from the water system must be increased about 30 per cent. Many consumers were being penalized because of fixture duplication where additional fixtures had been installed for guests or convenience. The amount charged for lawn sprinkling was $6.00 per year per sill-cock. This resulted in the wasteful use of many sprinklers day and night during several months of the year. It also developed that the flat rate to many commercial consumers produced a revenue equal to about one-third of the cost of producing and delivering this water, and included no contribution to the fixed charges that the system was required to meet.

A study of the situation disclosed excessive and wasteful usage of water—a condition partially remedied by effective public appeal. However, a review of water usage showed a gradual increase of per capita consumption from less than 100 to more than 170 gallons per day. An inspection indicated considerable leakage in plumbing fixtures and many wasteful practices in water use. The problem resolved itself into one of two solutions, namely, an increase in water facilities at large expense, or a reduction in the daily demand. It was established that the installation of meters would effect the necessary reduction.

Examination of receipts indicated many inequalities. Many householders were using far more water than their payments justified, while others were penalized for convenience outlets not used. Commercial users were paying only one-third the cost of producing and delivering the water they used.

In setting up a tentative water rate, based on metered services, it was decided, for simplicity, to divide the total expenditure of the system into three major items which, taken together, would constitute the water rate. The first item, called the "fixed charge," included the consumer's share of the bond service and administrative charges, items which have little relation to the amount of water produced and delivered. The second item, "meter charge," consisted of the cost of purchasing and installing the meter for each consumer, this charge being spread over a number of years, together with the cost of maintaining this meter per year. The third item consisted of a sliding-scale rate for water actually consumed.

In distributing the "fixed charges" to a consumer, it became necessary to establish a "base" consumer and then classify various services as representing one or more base units. The one-family service was taken as the base unit, and large consumers were classified according to the number of base units or according to water usage for commercial services. The following table illustrates the unit rating of various consumers:

1-family service	1 unit
4-family service	4 units
Commercial consumers using less than 100,000 gallons per year	1 unit
100,000 to 200,000 gallons per year	2 units
More than 900,000 gallons per year	10 units

Calculations from these data showed that a base unit charge of $15.00 annually would be required to liquidate the fixed charges.

The meter rate is dependent upon the size of meter required and the type of service demanded. The water rate was scaled, on an annual basis, from 16 cents per thousand gallons for the first 200,000 gallons of consumption to a minimum of 8 cents per thousand gallons for a use of over 2,000,000 gallons. By applying these tentative rates to the list of individual consumers, with a minimum estimate of their probable use of water, an adequate revenue resulted, together with an equitable distribution of both fixed and variable charges.

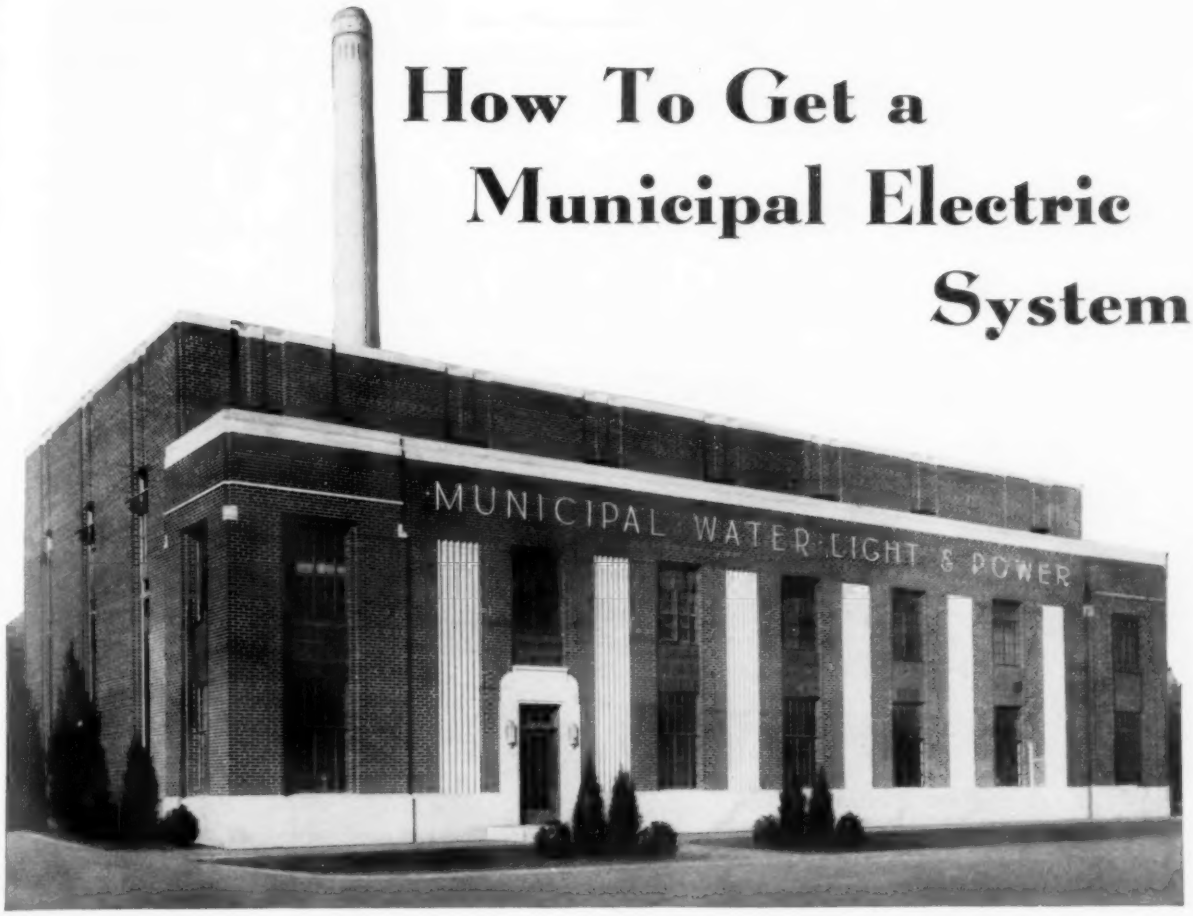
It was imperative in this particular case that water consumption be reduced to avoid the necessity of a construction program looking toward additional sources of supply and additional storage. The introduction of the meter system not only provided a basis for an equitable distribution of increased charges for water, but also served to reduce waste and avoid large additional construction costs.

This is the first of a series of articles covering the engineering analysis of basic municipal problems. Watch for them and save them for permanent reference.

The second, covering the digestion of ground garbage, will appear next month.

An article on the value and use of master-meters will follow soon.

How To Get a Municipal Electric System



The municipal power plant at McPherson, Kans.

Careful Preliminary Study, Intelligent Financing, and Non-political Management Are Important in Establishing a Sound Electric Plant

By R. E. McDonnell
Burns and McDonnell Engineering Co., Kansas City, Mo.

As franchises expire—and even where franchises have not expired—cities are asking how to establish a municipal electric plant. Eighty-two per cent of all our cities already own and operate their water works. With electricity becoming equally as essential as water for the welfare of the community and, at present rates, much more profitable, municipal officials ask themselves the natural question, "What must we do to have our own municipal electrical system?"

Of the 2,406 cities and towns owning their electric systems, there are probably very few that went about acquiring them in the same manner, for conditions in various places are different, and there is no general procedure to be followed to insure in all cases.

Nearly every movement made toward establishing a municipal system brings about a reduction in the electric rates. If the effort is sincere, determined, and well planned, it will result in one, two, and even four reductions in rates, the size of the reduction being in proportion to the sincerity and determined effort put forth by the municipal authorities toward establishing a municipal plant. Obviously, attempts are made to discourage further steps toward municipal ownership, and these attempts are often successful.

No city should go about establishing a municipal plant without making a careful study and survey of all conditions. Officials should realize that the mere expiration of the franchise, even when the original investment has been retired many times over, does not mean that the company will move quietly and willingly out of town. On the contrary, it will offer plenty of resistance—legal and otherwise. The group opposing municipal ownership will be expertly organized and well financed and will have at its disposal not only the engineering talent of its own organization, but also that of the holding and the allied companies who always band together to oppose any change to municipal ownership. It is, therefore, important at the outset that any municipality considering municipal ownership should have equally capable engineering talent experienced in public utility work.

The Engineering Report

The engineers should make a complete examination of local conditions. Their report to the municipality should cover the character and kind of system necessary to meet present and future needs. They should analyze fully the type of plant that will give the city the most economical and efficient service, whether it be steam, diesel, hydro power, or a combination of these. The engineers should then study the electric load carried for the past several years in order to make an accurate prophesy of future load requirements in the proposed plant.

This study should include the relation of the load for the full 24-hour period, thus determining the relation between the day load and the night load. Studies should also be made of the daily peak load and the daily average load, the monthly peak load, and the monthly average load, and then the annual load. It is exceedingly important to know the load factor, or the relation between the average load and the maximum load.

An accurate appraisal and inventory of the existing property should be made by the engineers and then used as a basis for an offer to purchase the existing plant. If your city can buy at a fair value, your troubles are over. But rarely has a city been able to buy without first starting to build its own plant. Knoxville, Chattanooga, and Memphis all were reluctantly forced to start building before they could secure a fair price for the properties.

An experienced engineer can procure for you: (1) the cost per kilowatt-hour on the switchboard; (2) the distribution costs; (3) the probable maintenance cost; and (4) the savings in rates to the customers.

The question of rates established will be the critical feature of the entire report, and the probable rate that will be charged for electricity must be based on the following items: (1) a definite determination of the number of years required for the plant to pay for itself, covering both capital investment and interest charges; (2) the setting aside of a proper amount each year for depreciation, replacements, and additional equipment as the load grows; and (3) a complete financial analysis to cover operating costs.

Financing the Plant

One of the important things in establishing a municipal system is the financing of the project. The financing will be dependent entirely upon the results of the report and the confidence that bonding houses have in it. There are now many reputable concerns throughout the country that are anxious to purchase bonds on municipal light and power projects. These bonds may be one of two types: use of the revenue; or general obligation. The basic difference, of course, is that the revenue bond is a lien against the plant and is payable solely out of earnings. There generally is also a prescribed maximum rate that may be charged the consumer, thus providing protection from both excessive taxes and high electric rates.

Cities have invariably found that it is much easier to vote revenue bonds than general obligation bonds. Every city that has attempted to obtain a municipal plant knows the arguments that will be used against general obligation bonds. There is always a determined effort to scare the small home owner into believing that he will lose his home if the municipal system is approved. This loses its effectiveness as an argument when the bonds are to be paid solely out of the revenues of the utility.

Establishing a municipal plant may be a long, hard battle. For a few years I kept a record of the injunctions to block the municipal plants. On certain individual projects, these rose to as high as ten injunctions and court hearings, and always the engineers' report was the basis of the fight.

This is the second of two articles by Mr. R. E. McDonnell discussing municipal electric problems. The first appeared in May and analyzed the "Why" of a municipal electric plant.

A Few Don'ts

1. Don't promise or try to create a tax-free city
2. Don't use the surplus to finance all kinds of civic projects
3. Don't reduce rates to the point of overloading equipment to supply customers
4. Don't forget that the normal load increase will double your plant every seven years
5. Don't fail to pay taxes into the city treasury at least equal to the amount that the company paid

The Municipal Board of Public Utilities, Kansas City, Kans., has established an enviable record for managing municipal utilities

6. Don't neglect keeping accurate production records and making approved-accounting annual reports

7. Don't fail to adopt and follow an outside expert engineer's 10-, 15- or 20-year program of development

8. Don't be a quitter and lie down on your efforts to establish a municipal system when you get offers of rate reductions, etc.

9. Don't engage in municipal ownership or operation except under a utility board of non-partisan, loyal, high-minded citizens, because politics and kilowatts don't mix.

Some may think I look upon the establishment of a municipal plant in a rather discouraging attitude. I have at least found out what not to do after 44 years representing municipalities. I can say that the truest and best arguments supporting municipal ownership today are the municipal utilities themselves as well as the results obtained in well-managed municipal utilities that are giving service to the public at a cost based on the generation, production, and distribution of electricity, rather than upon any fictitious values.

To any city desiring to achieve municipal ownership, my first advice would be to visit and carefully inspect the municipally owned and operated plants in its own vicinity. These plants speak for themselves.

• • • —

Base Waterproofed with Resin at Tallahassee, Florida

Unstable Sand-Clay Treated with Resin Slurry Stands Unusual Continued Rains before Surfacing

AFTER varied experiences with other methods of stabilizing the sand-clay soils at the Municipal Airport, the city of Tallahassee, Fla., used a resin slurry to stabilize and waterproof 3,900 feet of the road leading to the Municipal Golf Course. This street carries an average of 500 cars a day, with the traffic doubled on Sundays and holidays.

The soil in the 20-foot-wide road is a clay much like Fuller's earth known locally as "fall-to-pieces-clay," and sand-clay in all combinations, with some top soil. These materials were pulverized in place with plows, disks, and road machines to a depth of 6 inches to give a reasonably uniform material for the application of the resin slurry.

Applying the Resin

A 500-gallon water wagon with a metal tank and double manholes was used for preparing the resin slurry. A total of 750 pounds of Vinsol resin and 12.5 pounds of sodium hydroxide were placed in the tank and mixed by the stirring action of a high-pressure hose until the 500-gallon tank was filled. This slurry was then sprinkled on the road through a 7-foot spray bar, the tank making three trips to apply the solution to the full width of the road. One tankful was sufficient for 960 feet of 20-foot road. The resin and soil were then mixed for the full 6-inch depth, using the same tools as had been used for pulverizing the sand-clay soil. At the end of the mixing, during which the material was compacted by the tractor and other equipment, the surface was hard planed with a heavy-duty grader to give it a 1½-inch crown in the 20-foot width. As an extended period of rain began just as the planing operation was completed, there was no opportunity for full compaction by rolling.

The Deluge

The shoulders of the stabilized road are of the same material as was mixed with the resin slurry, and the ditches are of fair size. For three full weeks following the planing of the road, it rained almost continuously, sometimes soaking rains, and other times heavy washing rains, totaling 3.62 inches according to the official rain gage.

At the end of the rainy period, the base was examined carefully. It was found that the water had not penetrated and that about 1/32 inch of the top, which was somewhat granular, was not fully bonded to the resin-treated base. The surface material dried out in less than three days of warm, clear weather and was ready for the placing of the bituminous top. Just prior to the application of the bituminous top, samples were taken from near the two ends of the 3,900-foot treated base and carefully analyzed for the quantity of resin. Both samples checked out at 0.3 per cent of Vinsol resin by weight.

The surface of the resin-treated base was primed with 0.2-gallon-per-square-yard of asphalt cutback, which penetrated about ⅛ inch into the surface—something less than half the penetration of this same asphalt into the standard sand-clay bases usually used in Tallahassee. The usual penetration is from ¼ to ⅜ inch. The bituminous top consists of a 1¼-inch-thick premix of ¾-inch maximum-size slag and asphalt cutback.

Personnel

This test road, using Vinsol resin for the waterproofing agent, is believed to be the first municipal project in the United States using this type of stabilizing material. The work was done under the direction of M. N. Yancey, City Manager, and Miller Walston, City Engineer.

Local Government Is News—XV

"Where-to-Buy" Municipal Services

By PHILLIPS BRADLEY

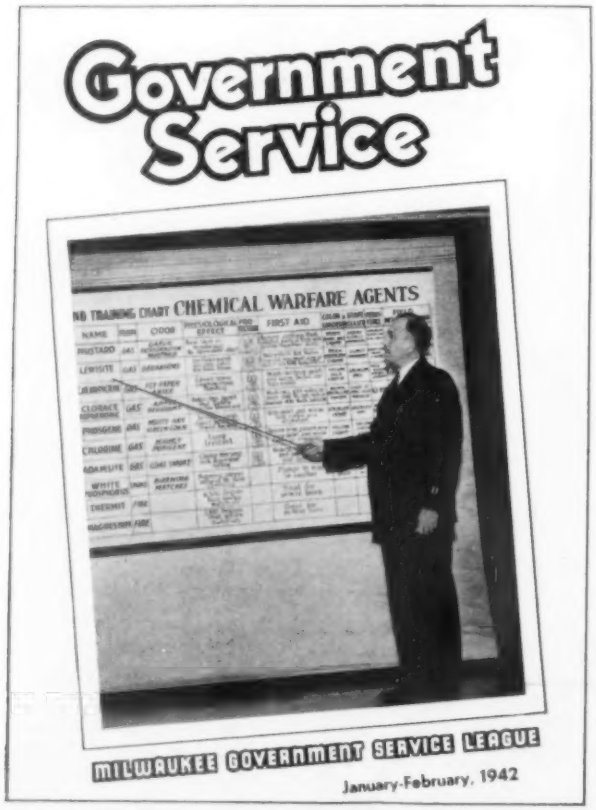
MORE than ever before, American towns and cities have a job to do in giving their citizens up-to-the-minute information on what they can get from City Hall—and where. The war has increased the responsibilities of local officials in many new directions. It has made the community more aware of the need for keeping in touch with City Hall about a dozen and one matters that they never bothered with in peace times. This is true, of course, for all the direct civilian defense services, but these are by no means the only new municipal activities which center in City Hall today.

The new price-fixing and rationing orders—certain to expand in the months ahead—are one example of new responsibilities which local officials must worry about. As the pinch on the home becomes more severe, city and town offices will inevitably be called on to interpret and explain the whys and wherefores of new regulations. Local government, although it is not primarily concerned as yet with applying federal rules in these and similar fields, can do much to make the lot of the citizen easier.

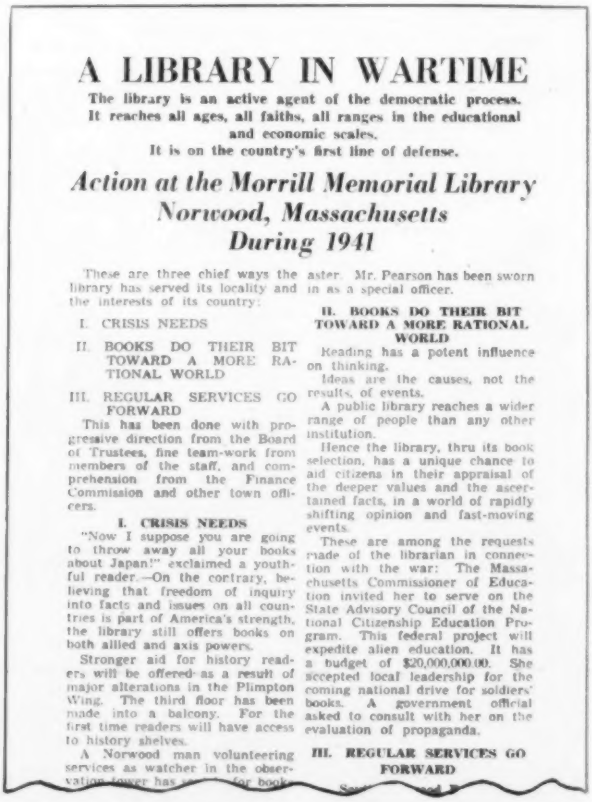
Take, for instance, the varied consumer problems which every housewife is beginning to face. Price changes, rationing restrictions, market news, rent control, chiseling—these are only a few of the matters about which people are asking questions, writing letters to the press, seeking accurate information. Since City Hall is closer to the individual citizen than any other governmental agency, it can do more than state or federal offices to inform him—and to make the new way of life in America meaningful to Mr. and Mrs. Citizen.

Many Civilian Defense Volunteer Offices in the larger cities are developing new consumer education and advisory services to meet the current problems of intelligent purchasing in wartime. Local consumer committees are being set up to carry on information activities, to bring market news into the home, to turn the complexities of rationing and price-fixing regulations into every-day terms. City Hall can do much to aid this kind of household service—and to establish it when it is not made available otherwise. In cities with departments of markets, it is obvious that any volunteer activity must be closely tied in with public agencies operating in the same field. If no such service is available in the local CDVO, City Hall can well afford to create it.

The local library system can, for instance, be made the center for a con-



The Milwaukee Government Service League publishes an interesting magazine; this is the cover of a recent issue



A LIBRARY IN WARTIME

The library is an active agent of the democratic process. It reaches all ages, all faiths, all ranges in the educational and economic scales. It is on the country's first line of defense.

Action at the Morrill Memorial Library Norwood, Massachusetts During 1941

These are three chief ways the library has served its locality and the interests of its country:

I. CRISIS NEEDS

II. BOOKS DO THEIR BIT TOWARD A MORE RATIONAL WORLD

III. REGULAR SERVICES GO FORWARD

This has been done with progressive direction from the Board of Trustees, fine team-work from members of the staff, and comprehension from the Finance Commission and other town officers.

I. CRISIS NEEDS

"Now I suppose you are going to throw away all your books about Japan!" exclaimed a youthful reader.—On the contrary, believing that freedom of inquiry into facts and issues on all countries is part of America's strength, the library still offers books on both allied and axis powers.

Stronger aid for history readers will be offered as a result of major alterations in the Plimpton Wing. The third floor has been made into a balcony. For the first time readers will have access to history shelves.

A Norwood man volunteering services as watcher in the observation tower has ... for book-

aster. Mr. Pearson has been sworn in as a special officer.

II. BOOKS DO THEIR BIT TOWARD A MORE RATIONAL WORLD

Reading has a potent influence on thinking.

Ideas are the causes, not the results, of events.

A public library reaches a wider range of people than any other institution.

Hence the library, thru its book selection, has a unique chance to aid citizens in their appraisal of the deeper values and the ascertained facts, in a world of rapidly shifting opinion and fast-moving events.

These are among the requests made of the librarian in connection with the war: The Massachusetts Commissioner of Education invited her to serve on the State Advisory Council of the National Citizenship Education Program. This federal project will expedite alien education. It has a budget of $20,000,000.00. She accepted local leadership for the coming national drive for soldiers' books. A government official asked to consult with her on the evaluation of propaganda.

III. REGULAR SERVICES GO FORWARD

Librarian Edna Phillips, of Norwood, Mass., uses a four-page leaflet to tell the story of "A Library in Wartime"

summer-information service. A special bookshelf of nutrition books and pamphlets, of governmental documents and regulations, of local rationing and price-fixing orders can be set up where it will attract attention. Exhibit materials can be collected, or produced in city offices, and made available to civic groups and social clubs on a traveling basis. Experts from City Hall can be put at the disposal of community agencies of all kinds to bring information and suggestions down to the neighborhood. Local committees can be developed to cooperate with City Hall and other public officials in making the rules and regulations effective in practice.

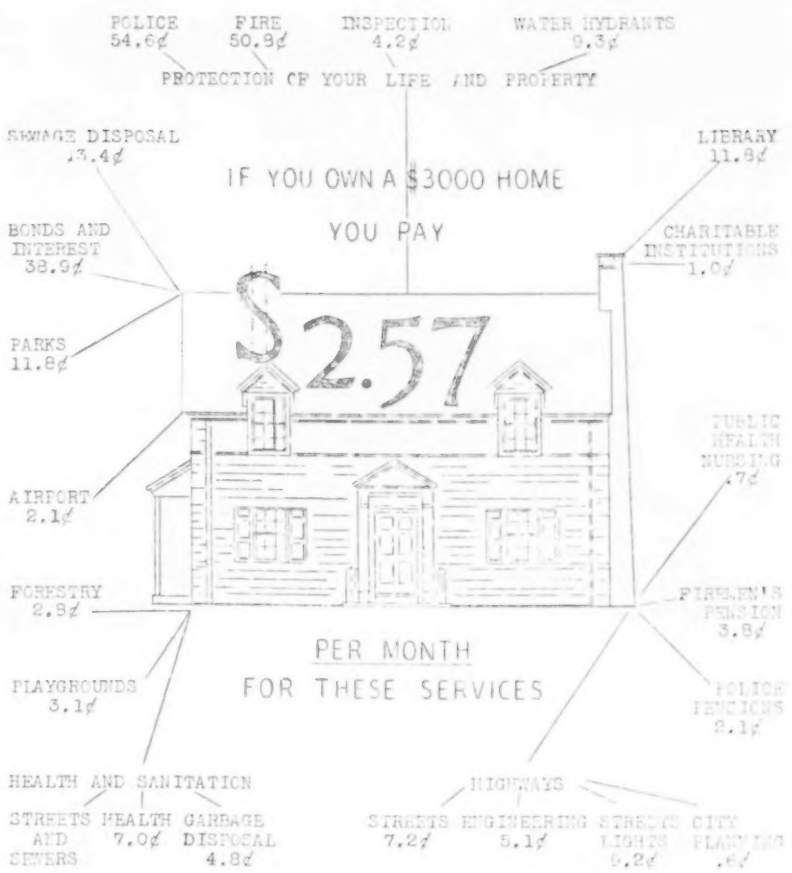
All this does not mean that City Hall is usurping the functions of other public officials, federal or state. In the job of civic education which lies ahead of us, there cannot be too many officers of government to give the new way of life in wartime reality—and sense—to the citizen. Local government is, or should be, closest to him; it can give meaning to the sacrifices he will be called on increasingly to make. Is there less need in a field which touches intimately his everyday life than in the fighting services of civilian defense?

Information Centers and Civic Pride

What about the regular services which City Hall is supplying to the community every day? How can they be made more effectively known? Should City Hall "sell" these services across the counter? What kind of counter—where?

Certainly, in the larger cities, there is a growing recognition of the value of setting up a municipal information center where anyone can ask any question he wants. In Kansas City, Mo., for instance, a Bureau of Information and Service was established on September 1, 1940. Located on the first floor in the main lobby of the city hall, it has become an integral part of the city's life. Personal and telephone inquiries are handled by a uniformed staff. Requests for and complaints about all city services are routed to the proper department and reports on results forwarded to the person requesting service or the correction of the complaint. New York City has recently opened a Civilian Defense Information Center where an exhibit of household needs and equipment is permanently available and is soon to be placed on a traveling basis.

Many other cities—St. Louis, Memphis, Omaha and Council Bluffs, for example—have organized official welcoming committees to greet newcomers and make them feel at home.



Even a mimeographed report can present facts graphically, as this page from the annual report of Wichita, Kans., shows

Often, private citizens volunteer to ring doorbells, take along some of the necessary first things a family wants when moving in—and to deliver a personal letter from the mayor in the new home. Few services from City Hall will do more to give the new citizen a sense of belonging to the community—a community worth living in. In these days of rapid shifts of population, there is hardly another direct activity which can do as much to make City Hall come alive as a service agency. There is a double advantage here, for the old timers who take part in carrying the service to new arrivals gain a new sense of civic participation.

City Hall Directory

There are many other ways in which City Hall can make the citizen more aware of where to buy his city services. Dallas, for instance, has issued recently a mimeographed "outline" of the organization and operations of the city government. Milwaukee's annual report is designed specifically as an information manual on city affairs. About 75 per cent of each year's copies go, in fact, into the schools and civic groups—through which a cumulative interest in and understanding of local services and activities filters to the whole community. The Milwaukee Government Service League publishes a bimonthly magazine which interprets City Hall to the citizen as well as to the staff which publishes it. Primarily a house organ, it is hardly less a news service to city's people-at-large.

These are only a few of the ways in which cities all over the country are making government come alive to the people. **The American City** ***wants to know about other experiments in the same direction—from the public officials whose devotion to civic improvement has made them develop similar extra services to their communities. Write the Editor, 470 Fourth Avenue, New York City.***

Ozone in Water Treatment

Improved Equipment and Lowered Electrical Costs Mark Advances in This Process

By STANLEY JENKS
Ozone Processes, Inc.
Philadelphia, Pa.

THE successful Americanization of ozone for water treatment has finally been achieved. Recent developments in equipment, coupled with reduced electrical costs, have contributed toward bringing this about. Ozone now finds economic and dependable use in water-works operations.

Ozone has been used in Europe successfully for more than 40 years to treat water supplies. Such equipment and methods, however, have been and still are peculiarly European and, as many previous attempts have conclusively proved, not suitable for American use. In the first place, European equipment is impractical in the United States because it requires highly technical maintenance to keep it operating. Second, the European objective has been solely sterilization, calling for ozonation after filtration, or when, as the French Board of Health states, "the organic pollution is less than 3 ppm." Granted that ozone is everything that the late Dr. Roux, President of the Superior Council of Public Health of France, said (see Vol. 13, page 356 of the Proceedings of the Pastuer Institute):

> "(1) All pathogenic or saprophytic microbes met with in water are completely destroyed by ozone, and
>
> "(2) Ozonation does not bring into the water any foreign element prejudicial to the health of those persons drinking it"

in the United States we are not only concerned with supplying water that it potable or "safe," but that is palatable, crytal clear, sparkling, and pleasant to drink.

The application of ozone in the United States is directed at both sterilization and at the removal by oxidation of color, taste, and odor-producing ingredients in water. To accomplish this requires a flexible process, permitting ozone to be applied in varying dosages at the point where it is most advantageous in the present filtration system and not necessarily after filtration or purification, as in European practice.

To generate and apply ozone for water purification, the energy consumption is approximately 16 kwh per pound of ozone. Even ten years ago it was at least 25 kwh. Today's low energy requirement has been made possible by the recent development of highly efficient and dependable air-cooling and conditioning equipment, using inert chemical adsorbents like silica gel and activated alumina. Air for ozonation must be consistently dry. The maximum permissible dew-point is around —20° C. or —4° F., which means a moisture content at standard density and pressure of 0.4 grains per cubic foot. The drier the air the greater the generating efficiency of the ozone. Today's much lower energy rates complete the favorable economic picture. Even as recently as ten years ago power rates of 1.5 cent per kwh for water works were few and far between. Today, such a rate is more nearly maximum than average. The result is that whereas ten years ago a pound of ozone at the lowest price might cost 50 cents, the present price is 24 cents per pound, or better than a 50 per cent reduction.

"Pre-Ozonation"

It was probably this high initial generating cost that led pioneers in the ozone field to seek a point of application in a water-treatment system where the ozone demand was lowest, or even after filtration when the water is least polluted. In the United States, however, it has been found that ozone can be used inexpensively even ahead of normal treatment. The ozone installation at Whiting, Ind., is a case in point. Here the ozone is applied, ahead of all treatment, to badly polluted raw incoming water, so bad in fact, that it was economically impossible by any other known method to make it palatable.

The water filtration plant at Whiting, Ind., showing the large ozonizers in which ozonized air is intimately mixed with raw Lake Michigan water before coagulaiton, settling, and filtering. Pre-ozonation has reduced chemical costs $1.12 per mg at Whiting

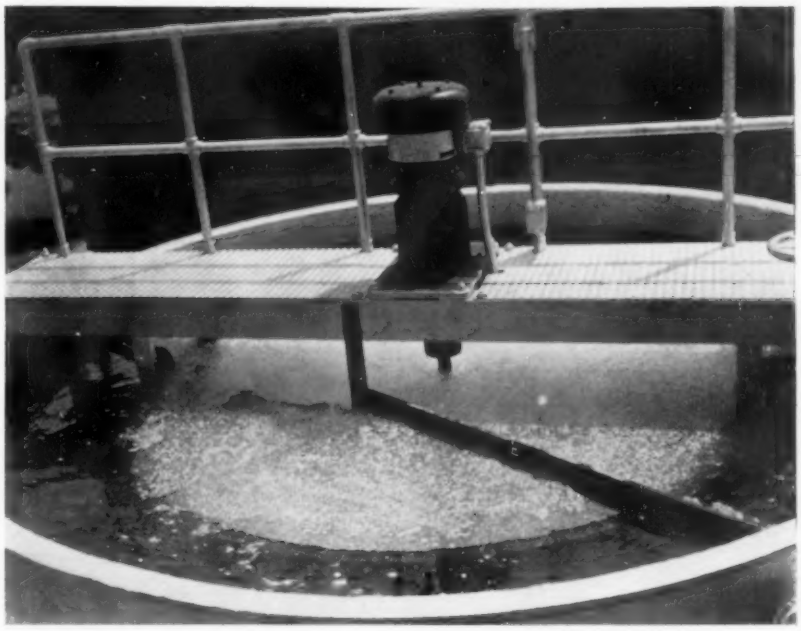
Over and above the importance of the results obtained at Whiting, the saving in chemicals used has special significance. A comparative study of one complete year's operation, before and after ozonation, shows that the average ozone applied per mg was 7.9 lbs., and the cost $2.53. This cost per pound, it should be pointed out, is higher than the general cost quoted above. An improved air-drying system will readily remedy this. But with a gross operating ozonation cost of $2.53 per mg it has been found that reductions in chemical savings per mg have been: chlorine $.175; ammonia $.41; and aluminum sulphate $.535; or a total chemical saving of $1.12. This makes the net operating cost for ozone at Whiting only $1.41 per mg.

Ozone Equipment

Ozone in adequate concentrations for water purification is produced by the passing of clean, dry air through a high tension electric corona between electrodes of opposite potential, separated by a strong dielectric, generally glass. Terrific heat is generated, and the bugaboo in the past has mostly been the cracking of the glass dielectrics due to heat. The first and obvious requirement is to provide ample cooling capacity to dissipate the heat before it can hurt anything and at the same time design plates capable of withstanding the non-dissipated heat. This has been done, with the result that broken dielectrics are very rare these days. This is probably the biggest major improvement that has been made in insuring dependability of operation.

Another important step is limiting the use of mechanical auxiliaries to a minimum. For example, the Europeans use high frequencies because, theoretically for ozone generation, they are more productive. We use the standard 60-cycle frequency because it is more practical and, furthermore, the simplification it brings about, as well as its lower initial cost, more than compensate for the slight reduction in capacity.

The most important factor in using ozone for water treatment is the intimacy of contact that can be produced between the air-borne ozone and the water. Ozone is the most powerful oxidant known for water treatment. It oxidizes every known element except gold and platinum. Its action is practically instantaneous, and in addition to its sterilizing qualities, it oxidizes, to an insoluble form, taste or odor-producing soluble elements in the water. Since ozone is relatively less soluble in water than oxygen, the ratio being four to one in favor of the latter, intimacy of contact or completeness of diffusion is important. It is axiomatic that when an ozone residual in the water is obtained, complete contact has been made. Excess dosage does no harm and adds nothing but activated oxygen to the water.



Intimacy of contact and completeness of diffusion is important. Ozone is diffused through a grid of porous tubes and rises against the down flow of the water

Simple to Operate

Today's ozone generator is simple enough to be operated by any man with the intelligence to backwash a filter. All controls are automatic, and the generator is amply provided with safety controls against mechanical failure. The normal maintenance due any standard piece of equipment with moving parts can, of course, be anticipated. The output of the ozonator can be regulated to any amount within its capacity by voltage control. Also, by changing the concentration of ozone in the ozonized air, the production of ozone can be varied at a given voltage. This flexibility allows operators to meet successfully rapid changes in the characteristics of the water.

The ozone residual in the water can be determined by the same universally used orthotolidin method of detecting chlorine. With ozone, a simple arithmetical adjustment is necessary to allow for the fact that 1 ppm of ozone has the same oxidizing power as 1.5 ppm of chlorine and produces the same color intensity.

Not a "Cure-All"

The many variables in the water-treatment field make a standardized ozone process impossible at this stage of development. Actual testing, guided by experience, is the only sure way to find the answer.

No responsible sponsor of ozone can advocate it as a "cure-all" for every water-treatment trouble, but it merits serious consideration as a practical method of American water treatment.

Those who expect to reap the blessings of freedom must, like men, undergo the fatigue of supporting it.—THOMAS PAINE

Liquid Chlorine AND Soda Ash

. . . No. 1 BASIC MATERIALS FOR UNCLE SAM'S ARSENAL!

As a user of liquid chlorine or soda ash, you are probably well acquainted with the fact that these products are, either directly or indirectly, a factor in nearly all industries—*practically every one of which is today on a war time production basis!*

As with war producing industries, the public health services of this country are on a war time basis. The responsibility of these agencies under the *best* of circumstances is always a grave one. Now, in war time, this responsibility is increased a thousand fold.

Precious as liquid chlorine and soda ash are to vital war production, these Solvay products are still available in required amounts to the public health services for water and sewerage treatment. We must, however, conserve and use them carefully so that every possible pound of these vital materials can be used to the fullest extent for victory!

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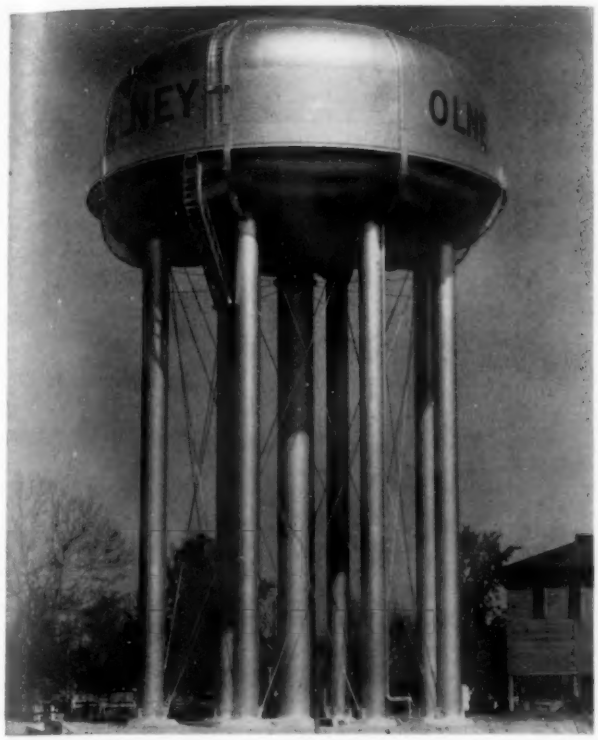

A new 400,000-gallon tank at Olney, Ill.

Water-Tank Maintenance

Painting and Cathodic Protection Assume Importance in Overhead Storage Tank Preservation

By Edward E. Alt
Chicago Bridge & Iron Company

IT should not be necessary to emphasize water-tank maintenance as a part of the war effort. Generally speaking, in the average town, with a well as its source of supply, the largest single civic expenditure is the elevated tank. Furthermore, it serves as a symbol of municipal progressiveness, giving evidence of aggressive city management. It is difficult to justify the neglect of these structures by water-works operators or tolerance of such neglect by city officials.

Maintenance requirements differ somewhat between localities, depending on climatic conditions and the types of water stored. The general procedure is usually the same. There are two avenues open: one is through a systematic painting program; the other is through painting coupled with the relatively new electro-chemical protection system, known also as cathodic protection.

Painting Programs

It is generally accepted that deterioration results from electrolytic action of the steel through the water. Painting prevents the action by insulating the steel from the water. The cathodic process neutralizes the electrolysis by forcing controlled current from a positive electrode in the tank to the steel shell. Controlled in this manner, deterioration of the tank is prevented.

Painting programs should be instituted at least every four or five years. On the first painting after erection of the tank, it will probably be found that the original mill scale has either loosened or fallen off. The following work should then be done:

1. Thoroughly wire-brush and scrape all inside and outside surfaces removing any and all loose scale with a ball-pean hammer
2. Spot paint with red lead all steel surfaces so exposed
3. Paint the inside of the tank one coat of red lead paint and the outside one coat of black or bronze green graphite paint on finish coat as desired

On subsequent paintings, this same procedure should be followed, thereby insuring complete coverage of the steel and eliminating the possibility of pitting or advanced corrosion.

It is safe to estimate that about 80 per cent of all municipal tanks, however well preserved and neat-appearing on the outside, have had absolutely no attention on the inside since the original painting. This attitude on the part of some operators is most alarming. Much premature inside deterioration and pitting could have been avoided by a very small periodic expenditure for inside painting.

Red lead for the spot- and inside-painting should be a ready-mixed paint in original packages, preferably about a 20- to 22-pound mixture. It is possible to mix paste and vehicle in proper proportions on the job, although our opinion has been that the package paints give more consistent results. If the inside surfaces of the tank are very badly corroded, we occasionally recommend a second coat of red lead.

Painting the Outside

For the outside surfaces of tanks, any black or dark green graphite is satisfactory. If the original coat of paint was aluminum or a light color, a similar paint may be applied. Although at the present time it is impossible to secure aluminum paint, several paint companies have developed light-colored tank paints which have been found very satisfactory.

The question may be raised regarding our preference for pure red lead over commercial paints. Regarding this, we might say that of some 400 experimental samples of paint for the inside of water tanks, we have found that those paints with lead bases have averaged better than three to one over Bakelite varnishes and other products.

It is true there are tank linings which can be applied under special scientific methods that might be slightly better than the red lead,

following comparative tests

WASHINGTON, D. C. *orders* 22 FOSTER SIRENS

Before placing an order for air raid sirens, the Commissioners of the District of Columbia had comparative tests conducted on the several types of horns and sirens offered for air-raid-warning service.

These tests conclusively proved that the Foster Siren has a higher average decibel rating—a wider range of audibility—than any of the other types tested. As a result of these tests, twenty-two Foster Sirens will be installed in Washington's permanent air-raid-warning system.

Before you purchase sirens, we suggest that you send for details of these tests and their results. A sixteen page booklet containing this information, as well as a descriptive folder on the Foster Siren will be sent without cost or obligation. Simply ask for Reprint MSE and Bulletin 41-S.

This siren not only can be heard for miles, but it needs no pampering. The simple design includes but few parts, and these are constructed to withstand "emergency service."

Furthermore, it works fast—its rising sound pitch or howl reaches its peak in from three to five seconds, depending on the maximum pitch for which this siren is set. And—it can be used for signaling because of its sharp sound cut-off.

If a constant pitch is desired, this siren can be so ordered or factory converted into a revolving cylinder-type of horn which produces practically a single pitch from starting to full speed, as contrasted with the conventional siren action with rising pitch or howl.

Type 30 Foster Siren
(Small Size)

Size of Valve:	1¼ inch (female thread)
Actuating Medium:	Steam or Air
Pressure:	50 lbs. minimum—200 lbs. maximum
Temperature:	450 degs. Fahr. (total)
Consumption:	Steam—approx. 1100 lbs. of steam per hour Air—approx. 500 cu. ft. of free air per minute
Diameter of Rotor:	3 inches
Diameter of Horn:	8½ inches
Net Weight:	60 lbs. (assembled)

Type 45 Foster Siren
(Large Size)

Size of Valve:	1½ inch (female thread)
Actuating Medium:	Steam
Pressure:	75 lbs. minimum—200 lbs. maximum
Temperature:	450 degs. Fahr. (total)
Consumption:	Approx. 3000 lbs. of steam per hour
Diameter of Rotor:	4½ inches
Diameter of Horn:	18 inches
Net Weight:	110 lbs. (assembled)

Both the Type 30 and the Type 45 Foster Siren can be furnished with a solenoid operated valve for electric remote control, either for separate "push button" operation, or tied in as an integral part of an air-raid-warning or fire-alarm system.

FOSTER ENGINEERING Company

PRESSURE REGULATORS... RELIEF AND BACK PRESSURE VALVES... AUTOMATIC STOP AND CHECK VALVES... ALTITUDE VALVES... DAMPER REGULATORS... FAN ENGINE REGULATORS... PUMP GOVERNORS... TEMPERATURE REGULATORS... LIQUID LEVEL CONTROLLERS... FLOAT AND LEVER BALANCED VALVES... NON-RETURN AND TRIPLE DUTY VALVES... VACUUM REGULATORS OR BREAKERS... SIGHT FLOW BOXES... STRAINERS... SAFETY VALVES... SIRENS

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6-FE-1

but the costs of the materials and application are prohibitive and the finished job not sufficiently better to warrant the additional expenditure.

Cathodic Protection

The most recent contribution to the protection of steel water tanks is the electro-chemical or cathodic protection system. The past several years have witnessed a wide adoption of this method for the preservation of steel tanks and risers.

The cathodic protection system, as previously outlined, consists of an electrode suspended from the tank roof and extending down through the water in the body of the tank. This electrode serves as the positive pole of an electric cell with the tank water as the electrolyte and the tank proper as the negative pole. Direct current is supplied usually from a transformer rectifier unit, and the necessary conduit, wiring, and electrodes consisting of suitable materials for the characteristics of the water stored.

An electrical connection is made to the electrode, and sufficient current is supplied to reverse the electrical charge so that a constant flow of current is maintained from the water to the tank shell. This polarizes the surfaces of the steel and effectively prevents any further corrosion.

In many cases this cathodic protection deposits the dissolved minerals, such as calcium and magnesium, on the walls of the tank and riser. These film forms which in appearance resemble a coat of paint. This film, in itself, affords protection from corrosion for several months in the event the current is shut off or the water level recedes for any considerable period.

It was originally thought that it would be necessary to keep the current flowing at all times. This resulted in difficulty in some tanks where the heavy ice formations during the winter months damaged the electrodes. Experience has shown, however, that the electrodes may be removed during the coldest months. Full protection is still afforded by the protective film on the steel.

Leading municipal engineers are now specifying this type of protection for both new and old tanks, and the definite advantages offered by this type of permanent and positive preservation of the interior of the tank may be summed up as follows:

1. Reduction in cost of maintenance. The cost of operating one unit in an average tank of from 50,000- to 100,000-gallon capacity, based on current cost of five cents per kwhr is less than $1.00 per month. Larger tanks require multiple units, and operating costs increase proportionately.
2. The tank is kept in continuous service. It is unnecessary to drain the tank for periodic inspections or painting, and there is no risk of being out of water in event of fire or peak load demands.

Maintenance "Rackets"

In the past few years we have been informed of the activities of certain tank maintenance companies soliciting tank painting and repair work. In many cases, exorbitant charges have been imposed for so-called necessary repairs to municipal elevated tanks and standpipes, such charges growing out of a small original painting contract. One of the commonest forms of this racket is a provision in the cleaning and painting contract for replacing defective rivets on a time basis or at so much per rivet, or under some other arrangement, which makes it advantageous for the contractor to replace as many rivets as possible. Such a contractor will "just happen" to be in town on the evening of a council meeting and will approach the council with the warning, "Your tower rods are loose and your tank will collapse if the rods are not tightened before the next wind storm."

Do not be misled by this latest form of "bugaboo," as we have never known of a time when this work was necessary to save a structure from collapse. Tower rod adjustment is made by experienced crews at the time the tank is erected and is accurately made to distribute uniform stresses throughout the tower. This work calls for expert technical experience, and improper adjustment may cause distortion and in some cases even failure.

Also, during our 50 years of experience in building elevated tanks, we have found that unless a tank is actually leaking, there is very little likelihood that any rivets need replacing. The heads of the rivets inside the tank are driven flatter than those on the outside, but that does not indicate any weakness in the structure. The rivet head is for the purpose of water-tightness. It is the shank of the rivet that carries the shearing stresses.

We strongly advise against engaging or permitting any individual to inspect or repair any tank unless the person is known by reputation and standing to be qualified to do work of that kind and can give references as to work of a similar character performed previously. The engineering problems involved are so technical that only experienced persons should undertake the work, as serious and irreparable damage to the structure may result from tampering by those who are incompetent.

This 104,000-gallon overhead tank was built at Ft. Dodge, Iowa, in 1894 and still gives active service

This article is based on a paper delivered by Mr. Alt at the Illinois Water Plant Operators' Conference.

Attack YOUR WATER PROBLEM with a PITOMETER SURVEY

ACME NEWS PHOTO

WAR AGAINST WASTE

Conserve your available water supply, save wear-and-tear on your pumps (they're going to be hard to replace!) and avoid any unnecessary pipe-line building by calling in the Pitometer engineers for a—

WATER WASTE SURVEY

Solve your distribution problems arising from abnormal wartime demands for water in your community by calling in the Pitometer engineers for a—

WATER DISTRIBUTION STUDY

An investigation by Pitometer engineers, long-experienced in this type of work, will determine the actual requirements and reinforcements needed, and will point the way to an economical program of construction, involving a minimum expenditure of labor and materials, which will be completely adequate to take care of both present and future needs.

PITOMETER SURVEYS are the NEED OF THE HOUR!

THE PITOMETER COMPANY

Water Distribution Engineers

52 Church Street New York, N. Y.

America Faces a Wartime "Fourth"

By Howard Braucher
President
National Recreation Association

FOR the first time in 24 years the nation is facing a wartime Fourth of July, and never since the early days of the Republic has there been a more acute need for rededication of the American people to the principles of justice, freedom, and democracy for which the Declaration of Independence stands.

Geared to an all-out military and industrial effort which must not slow down, the United States will have little time this year for the fireworks, pie eating contests, and fervid spread-eagle oratory of the past. Once-popular programs of explosion and display will be replaced by physical-fitness demonstrations, war work meetings, patriotic plays, and other community events more in keeping with the grave responsibilities of today.

Civic leaders are looking forward to the greatest "stay at home" Fourth in the history of the nation. Lack of tires and rationing of gasoline in the East Coast states are expected to cut down decidedly the number of families driving out of town for the week end, and war industries going full blast over the holiday will keep millions more at home.

Despite this increase in the number of people available in cities for local celebrations, family and neighborhood programs are expected to take the place of large-scale, city-wide demonstrations in many communities. This is especially true in industrial areas and coastal cities where the congregation of large, unwieldy crowds is considered dangerous in wartime. In these areas it is almost imperative that communities organize their celebrations on a sectional basis.

In most cities it is unnecessary to set up a special committee to handle plans for the Fourth of July. This can be done most efficiently and effectively by groups already in existence—park and recreation departments, local defense councils, or war recreation committees. The city may be divided into playground or school districts with the central committee breaking down into sectional sub-committees.

Where the playground is used as the hub of the neighborhood's activity, the already-functioning playground staff may direct the program. A city-wide radio broadcast often unifies the various sectional celebrations if all are planned around the same theme.

The neighborhood plan for celebrating the Fourth of July is particularly appropriate at this time when much civic defense preparation is organized on a city block or neighborhood basis. Such a small-scale program will not only provide more opportunity for individuals to participate, but it will be invaluable in strengthening neighborhood solidarity and increasing local cooperation.

Less Noise; More Serious Patriotism

The historic skit or play which will climax Independence Day programs in many cities this year will be based less on noisy patriotism and more on serious consideration of the history and development of our democracy. The charters of American freedom take on a new significance in these days, and no community program, large or small, will be complete without a reading or dramatization of the Declaration of Independence. More than ever before it is important that every citizen and every alien know and understand the tenets of freedom on which the American form of government is built.

In many localities the highlights of local history can be used as the theme for a Fourth of July presentation which will not only help to strengthen community spirit, but will also bring home to the audience the everyday significance of democratic thinking and living.

Special emphasis is now being placed on reverence for the flag. The average citizen is shockingly ignorant of the rules of patriotic etiquette for the display and use of the Stars and Stripes. Small pamphlets summarizing these rules and giving a brief history of the flag can be distributed to families through schools or community centers. These booklets may also contain selected quotations from the Declaration of Independence and one or two patriotic songs.

The "safe and sane" campaigns which have featured Fourth of July celebrations for the past few years may well have a logical climax in this war year. Figures available for the last few years show that thousands of people are still being killed and injured each year on the "Fourth." The cost of these accidents can be measured in millions of dollars, and the loss in manpower is incalculable. This kind of carelessness and waste is always inexcusable; with the nation at war it is treason.

The danger from fireworks is increased this year in many sections because of near-by war plants and blackout areas. In these areas strict control will be necessary, but it is the opinion of many safety leaders that legislation against fireworks and more stringent law enforcement are not enough. A safe program of community and home events is one which will be sufficiently challenging to prove more enticing than the delights of fireworks.

Soldiers, War Workers, and Friendly Aliens

One of the foremost problems facing the American community today is the need for hospitality on many fronts. Men in uniform, defense workers and their families, and friendly aliens are all more or less isolated from the normal community. Recreation programs have proved to be one of the most effective ways of reaching all of these people, and the Fourth of July will be an especially suitable time to extend an added community welcome.

In programs which are carried out on a neighborhood basis it will be the responsibility of the local committees to get in touch with new families and invite them to participate. Where trailer towns have been set up outside the city to accommodate the overflow of war workers, a celebration must be planned for these people, if possible bringing them together with some already-settled neighborhood group.

Equally severe in other communities is the problem of the friendly alien. President Roosevelt recently stressed the need for fairness and friendliness to these people. Independence Day is a made-to-order opportunity for helping to allay the suspicions of local residents and for giving these loyal noncitizens an opportunity to share in a tribute to democracy.

One of the best means of including all nationality groups in the Fourth of July celebration is the folk song and dance festival. During the last few years this type of program has been adopted by more and more cities as a colorful and effective way of emphasizing the cultural contributions of the many nationalities which make up America. The "good neighbor" policy dictates that special stress be placed on Latin American peoples, but the na-

tions of the other hemisphere will not be forgotten. In such a program all minority and majority groups in the community can take part, and German-, Italian-, and Japanese-Americans may be represented.

While extending the hand of welcome on the Fourth of July, the home towns of America will not forget the men in uniform. Plans are under way in all camp communities to include the service men in the local programs. Many defense recreation councils will concentrate on obtaining invitations to private homes for the men on leave.

Community Programs

The average community or neighborhood program will follow more or less the trend of the last few years and concentrate on increased participation in worth-while recreation activities. In addition to plays and tableaux, sports and athletic meets, playground fairs, children's doll and lantern parades, music and dancing have become part of the Fourth of July tradition. Physical fitness demonstrations will come into their own this year, since many cities are sponsoring classes for women and pre-draft-age men. The "Fourth" is an ideal date for a civic demonstration of fitness for victory.

Where holiday activity is centered in the neighborhood playground or in the home, it will be easier to plan special activities for children and older persons. Communities which are not sponsoring a civic celebration may want to issue handbooks of home play through their recreation departments. These suggestions for activities in the home can also be used in blackouts or other emergencies.

Community singing will highlight the Fourth of July program in many cities since its war popularity has boosted it high in the ranks of favorite civic activities. There is no more spontaneous symbol of community strength than men and women, boys and girls, soldiers and civilians singing together in homes, churches, or community centers.

The Fourth of July has always been essentially a community day. Its special meaning at this time was aptly described by President Roosevelt last year in words which are even more significant in 1942:

". . . these days are also days of hope and as the birthday of American Independence draws near it is altogether fitting that we should rededicate ourselves to defend and perpetuate those inalienable rights which found true expression in the immortal Declaration. Those words never had a deeper or more solemn meaning for America than they have in this hour of anxiety and peril."

New Status and Regulations for Civilian Defense Activities

PROVISION for the organization of a new United States Citizens Service Corps, formal recognition of and basic regulations for the United States Citizens Defense Corps and the Civil Air Patrol, and designation of certain classes of persons not enrolled in any of these services who may wear arm bands during a blackout or air raid are contained in a new series of administrative orders and regulations, issued April 30 by James M. Landis, Director, Office of Civilian Defense, under a new Presidential Executive Order.

The new regulations prescribe that all citizens shall be eligible for membership in the Citizens Defense Corps regardless of race, color, creed, or sex, provided they complete required courses of training and fulfill certain standards of loyalty to the United States Government. Resident aliens are ineligible for membership except on the favorable recommendation of the particular local defense council. Under the recent $100,000,000 grant from Congress, no person who is not a member shall be allowed to use official insignia or receive or use federal protective equipment issued by the Office of Civilian Defense.

To be under the national supervision of the Civilian Mobilization Branch of OCD, a new U. S. Citizen's Service Corps is created by the new order, to consist of volunteers for defense activities other than the protective services, who have completed prescribed courses, apprenticeships, or 50 hours of approved work in the fields of conservation, war-bond sales, salvage, education, health, consumers' service, etc. Members are entitled to wear newly adopted insignia.

Provision is also made for a civilian defense auxiliary group to consist of doctors, nurses, newspaper reporters and photographers, members of the clergy, undertakers, and other professional or specialized persons, who will be given armband insignia permitting them to travel on the streets and to carry on essential services or duties during blackouts and air raids. Under the new order, the Civil Air Patrol, composed of volunteer pilots and ground personnel, usually operating in close cooperation with military authority, is confirmed as an integral corps of OCD.

New restrictions have also been put into effect regarding the use, manufacture, and sale of all the official insignia to be issued by OCD.

• • • —

War Gardens and Fifth Columnists

From "The Clevelander" for March, 1942

The *Most Pampered* MILE of Dirt Road in the U.S.!

Made "Fast" with a Model 5 Street Flusher

The world famous Kentucky Derby track is conditioned before each race with a STANDARD STEEL WORKS Flusher which distributes water evenly over a 50′ width on each pass.

Stable fires can be quickly fought with this same Model 5 Flusher equipped with a big 500 G. P. M. pump driven by a 47 horsepower motor. The fire-fighting attachment on this unit will hold a powerful stream of water a distance of 70 feet.

For every city and town this combination Flusher and Fire Fighter is ideal for conditioning dirt and gravel streets during the hot summer months—it can flush and thoroughly clean your paved streets—it is an ideal stand-by unit for your Fire Department to handle grass fires and fires outside the hydrant area. Write today for full details.

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Indians on the Warpath

on the fighting front or home front, have to "take it" plenty—*and they can!* The dependable sturdiness and power always built into Indian Motorcycles mean that *your* Indians will stand up under the strain of war-expanded police duties. And Indian's exclusive Spring Frame construction increases motorcycle squad efficiency by making the going easier, no matter how rough the road . . . a prime reason why Indian has first call with progressive police organizations today. See your local Indian dealer for service.

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Indian

40 YEARS PRIDE OF THE FORCE

Billing Water through Punched Holes

By MARK L. MULLIGAN
Denver, Colo.

OF 80,000 water customers in Denver, Colo., fewer than 2,500 have meters. The other 78,000 are on a flat rate, with bills based on numbers of rooms, baths, water closets, and automobiles. Irrigation customers pay on a footage basis.

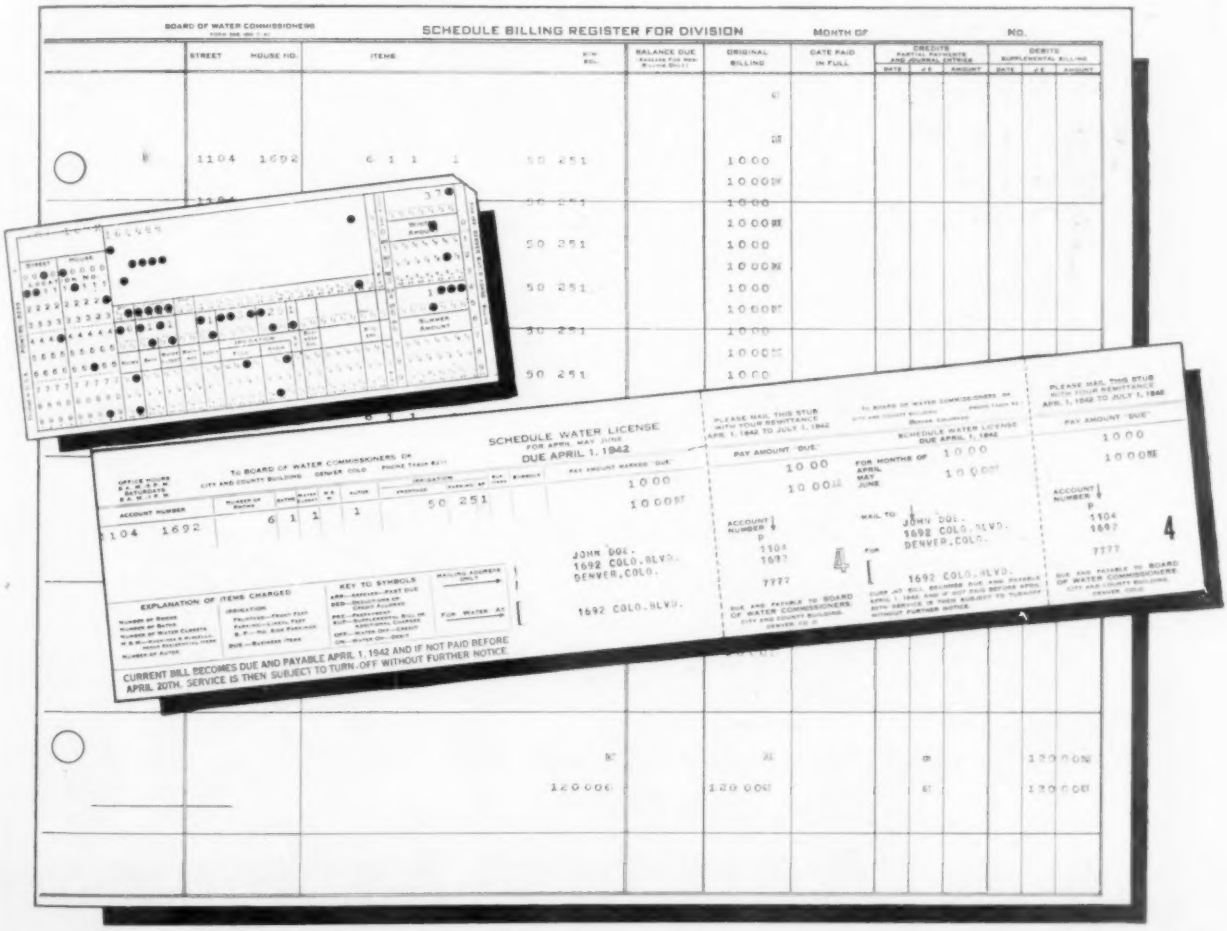
Up to May 1, 1935, all water bills were calculated and written by hand, quarterly. Only the total amount due was given, no attempt being made to itemize.

The production of these bills all at one time every three months created four peaks of drudgery every year. Furthermore, soon after they were sent out, lines formed at the cashiers' cages, producing a quarterly peak for the cash-receiving department. During these rush periods everybody concerned was overburdened, and when it was all over there were no adequate control figures for the Water Commissioners.

Dissatisfied with such procedure in a modern age, a search was made for a better system. The requirements were speed and accuracy in computing, billing, collecting, and accounting, more uniformity of production, and a ready picture of financial status.

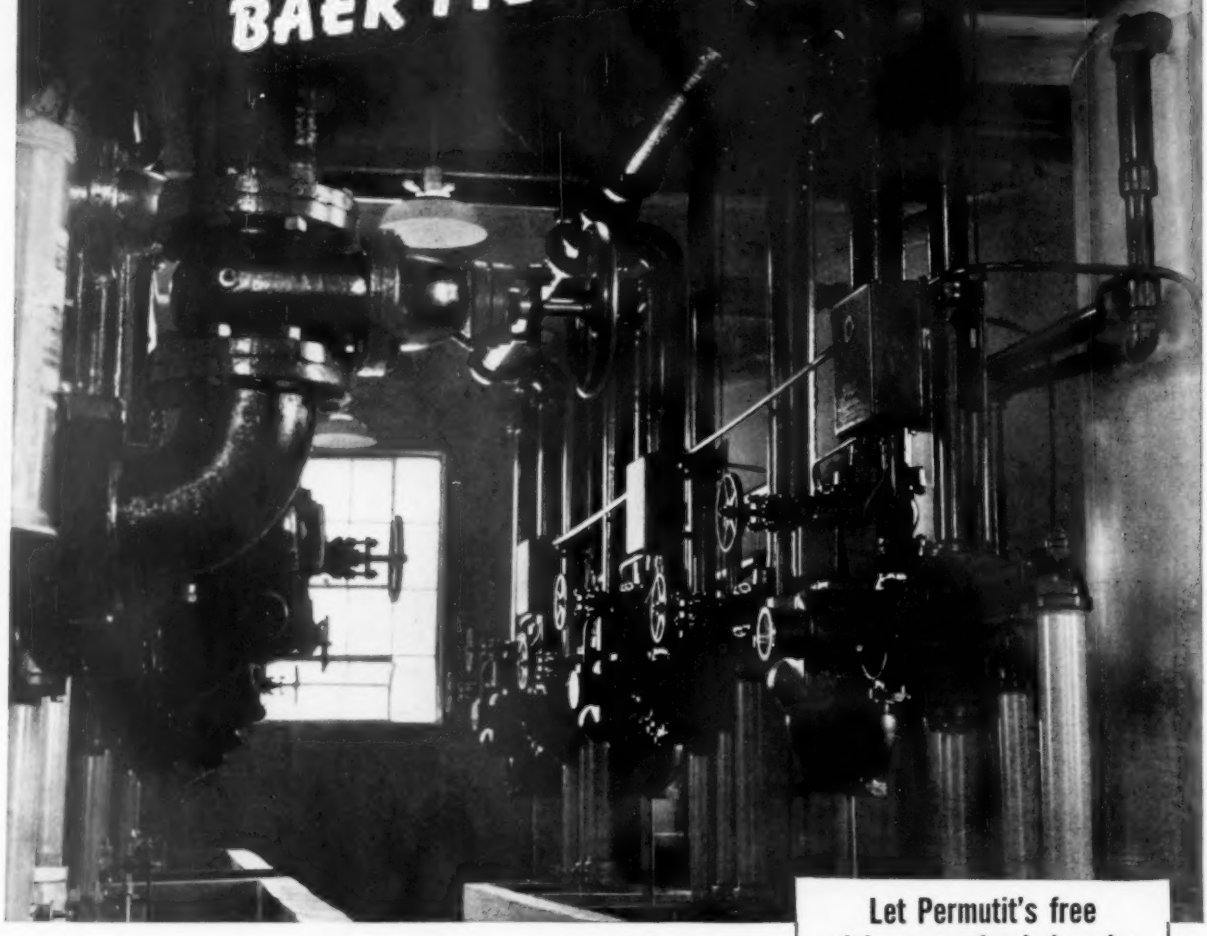
The city was divided into three billing zones and subdivided into 18 billing divisions. One of the three zones is billed each month. The billing is staggered by months for the different zones so that each customer is billed quarterly as before, but the billing goes to only one-third of the city's customers each month instead of all being billed quarterly at one time.

In addition to eliminating this full billing at one time, the present method spreads the receipt of income more equitably by months and provides for a better arrange-


SCHEDULE BILLING REGISTER FOR DIVISION
SCHEDULE WATER LICENSE
DUE APRIL 1, 1942
JOHN DOE
1692 COLO. BLVD.
DENVER, COLO.
CURRENT BILL BECOMES DUE AND PAYABLE APRIL 1, 1942 AND IF NOT PAID BEFORE APRIL 20TH, SERVICE IS THEN SUBJECT TO TURN-OFF WITHOUT FURTHER NOTICE

Punched cards run off water bills at 100 per minute for the Denver, Colo., water commissioners; here is the billing register, a bill, and one of the punched carsd that make them and that even out the year's load of water billing

Permutit* water conditioning equipment at BAER FIELD AIR BASE



The water supply at the Air Corps' Baer Field, Fort Wayne, Indiana, comes from private wells. Before treatment it contains 24 grains of hardness per gallon and a considerable amount of iron.

These impurities make a water supply that is well below Army standards. So Permutit equipment was installed to condition the water. Three Permutit zeolite water softeners (shown at right side of photograph) reduce the hardness. These units are completely automatic. Iron is removed by four Permutit single-valve filters (at left of photograph).

The Permutit-treated water flows to service, soft, clear and iron free.

Let Permutit's free advisory service help solve your water problem

Permutit's field engineers will be glad to call upon you or your consultants and help work out your own water problem. Write for free booklets: The Permutit Company, Dept. G3, 330 W. 42nd St., New York, N. Y.

In Canada: Permutit Company of Canada, Ltd. . . . Montreal . . . Toronto . . . Winnipeg . . . Calgary.

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PERMUTIT

WATER CONDITIONING HEADQUARTERS

Mention THE AMERICAN CITY—it helps.

ment of the entire budget.

The Addressograph was selected to print the consumer's name, address, and account number. All the rest of the data are printed by Remington Rand punched-card accounting machines.

Into each tabulating card is punched an account number, a code number for the street, the house number, and the various items and amounts due. The tabulating machine runs off a Schedule Billing Register from these punched cards. The sheets of this register are 14 by 17 inches in size and provide space for 20 or more customers. Credits due from vacancies, partial vacancies, change in number of autos, etc., are handled with equal facility by the machines, with proper adjustments automatically made on the billing register.

The accounting machine writes from the punched cards 100 bills per minute, giving items charged, credits, and arrears, with the total amount due. Bills are made in duplicate, the duplicate copy being retained for use in the office. Machine billing is accurate, rapid, and efficient. Also the machine automatically accumulates totals of all accounts for control purposes.

Control figures needed by the Board of Water Commissioners are available at any time. These five major controls for revenue guide the board in making estimates and calculations: total control figure set up for revenue, total accounts receivable, total receivables outstanding at any time, unpaid amounts, classification of adjustments allowed in basic billing.

Daily posting of cash receipts in the billing register is performed easily by one clerk. As payments are made by customers, the punched cards are removed from the unpaid file, so that the balances shown as unpaid in the billing register can be audited against the cards remaining in the unpaid file.

The Water Board's regulations call for shut-off of water if bills are not paid on the due date. With records kept accurately and up to the minute, the clerical force gives prompt information and instructions to the service section of the department, so that shut-offs are ordered at the proper time.

Every step and operation in the entire billing and collection procedure has been shortened by machine operation. Peaks and valleys of work have been levelled. Cash receipts come in far more evenly through the year. Delinquencies have been reduced below one-half of one per cent at the end of quarterly periods. The officers of the board now have the means for sound financial administration and control.

• • • —

New Regional Directors, FWA

BRIGADIER GENERAL PHILIP B. FLEMING, Federal Works Administrator, has announced a plan of reorganization to draw closer together, and coincidentally to decentralize further, the operations of FWA and its constituent agencies—the Public Roads Administration, Public Buildings Administration, Work Projects Administration and Public Works Administration. Other FWA operations chiefly affected are those pertaining to the war public works or community facilities program, which in larger part have been carried on directly by the FWA engineering organizatoin functioning under the Office of the Administrator.

In the new plan FWA will function, under general direction from Washington, through nine Regional Directors, of whom six were appointed on May 27. Each Regional Director will operate with a staff soon to be selected and will work as closely as possible with the field organizations of all the constituent agencies.

The new Regional Directors, with their regional offices and regional areas as presently defined, subject to change as experience dictates, are:

New England Region, headquarters Boston; Regional Director James A. McConnell. Mr. McConnell was formerly Regional Engineer at New York.

New York, New Jersey, Pennsylvania Region, headquarters New York City; Regional Director John M. Gallagher. Mr. Gallagher was formerly Regional Representative in New York.

Middle Atlantic Region, embracing Maryland, Delaware, Virginia, West Virginia, North and South Carolina, headquarters Richmond, Va.; Regional Director Kenneth Markwell, formerly Project Engineer of the Santee-Cooper, South Carolina and High Point, North Carolin power projects. The Washington Metropolitan District area will be under the charge of Henry J. Sullivan as Associate Regional Director for this region. Mr. Sullivan lately was put in charge of the war public works projects in this metropolitan district area.

Southwestern Region, embracing Texas, Oklahoma, Arkansas and New Mexico, headquarters Fort Worth, Texas; Regional Director James W. Bradner, Jr. Mr. Bradner formerly was Regional Representative in this area, which then embraced also the State of Louisiana. Louisiana will be added to the Southern region, with headquarters at Atlanta.

Pacific Region, embracing California, Nevada, Utah, Arizona, headquarters San Francisco, Calif.; Regional Director Pierce Williams. Mr. Williams was formerly Regional Representative in this region.

Northwest Region, embracing Washington, Montana, Oregon, Idaho, headquarters Seattle, Wash.; Regional Director L. R. Durkee. Mr. Durkee was formerly Regional Engineer of FWA in this region.

Regional Directors for the Southeast, with headquarters at Atlanta, and for two groups of Middle Western and Western states, with headquarters at Chicago and Kansas City, will be announced later.

TO WIN THIS WAR ... MORE PEOPLE HAVE GOT TO ENJOY RIDING IN FEWER CARS

REPRINTED FROM "VICTORY" FOR MAY 19, 1942

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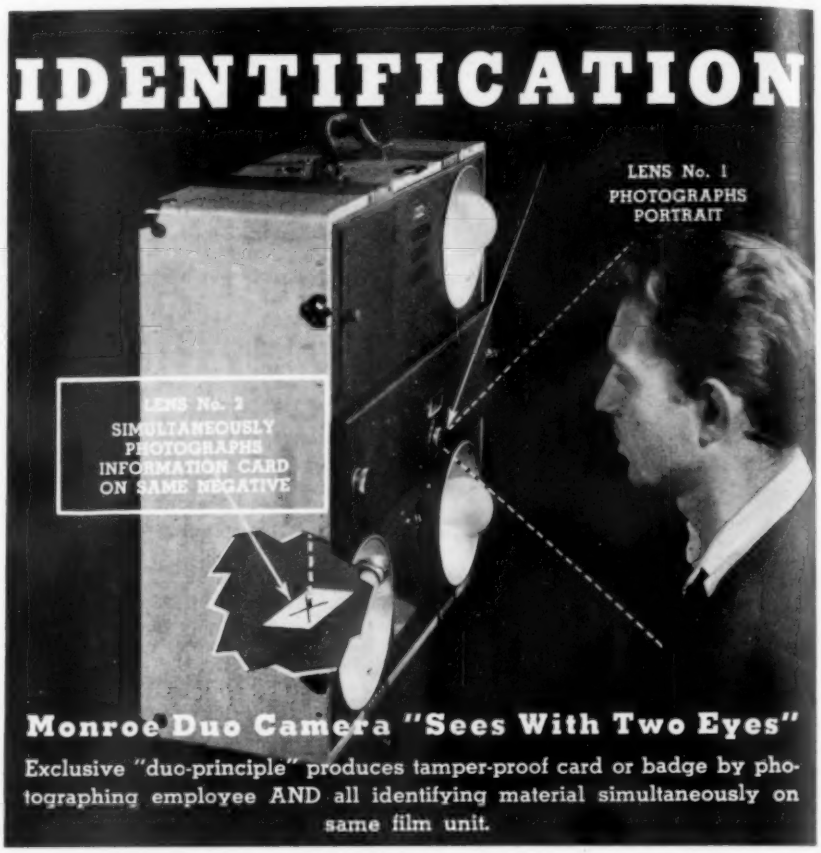

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Exclusive "duo-principle" produces tamper-proof card or badge by photographing employee AND all identifying material simultaneously on same film unit.

Amazing New Camera Available *TODAY*

to safeguard your plant against sabotage

BADGES?
Duo makes badge-prints to fit any type of badge.

Any size you prefer
Any information you want

1. **SAFETY PLUS** — Makes provision for portrait, signature, fingerprint (if desired) and full descriptive information plus official signatures, authorizations, emblems, numbers, etc., all photographed simultaneously on one single film unit.

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3. **FITS ANYWHERE**—No accessories needed. Portable, compact, built-in lighting system. Ready to operate when you get it.

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600 South Michigan Avenue
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PIONEERS IN POSITIVE IDENTIFICATION

Wartime Uses of Luminous Paint

By Milton W. Lightcap
General Sales Manager
Paints and Maintenance Division
Devoe & Raynolds Co., Inc.
New York City

THE war has brought about many changes in our thinking and mode of life. It has brought new words with which to think: "Priorities, conservation, rationing, air raids." SAFETY has taken on a new meaning. Just think! What if you were in an industrial plant, your office, your home, some dark night, and suddenly the air-raid sirens screamed! Then the electricity failed. What would you do?

To make that situation less terrifying, a few members of the paint-manufacturing industry have provided an additional wartime safety measure—LUMINOUS PAINT.

Luminous paint is in itself nothing new. By "luminous" we mean paint made from pigments which absorb natural or artificial light and then, in darkness, return the luminescence.

Extremely expensive radioactive pigments have been available for years. The other types of luminous pigment would absorb light, but emit it only for an hour or two. What was needed was a luminous paint of reasonable cost that would remain luminous all night.

The problem has been solved. Such a luminous paint is now available from a number of reliable sources. It is not cheap, but it has many essential uses.

This new paint comes in a neutral base for first coat or undercoat, and a finish coat material. One coat of the neutral base and two or three thin coats of the finish coat give best results. For exterior use a thin coat of extremely clear spar varnish will add durability.

Ask yourself: "What objects should I be able to see in the dark?" Many answers will flash in the mind of the mayor, city manager, public safety director, police chief, fire chief, plant superintendent: Signs for "exit," "danger," "high voltage," "air-raid shelter." All these can be painted, as can the handles or outline valves on gas tanks, oil lines, chemical pipelines which might have to be turned off without aid of a flashlight. It is also desirable to paint part of the fire extinguisher, Indian fire pump, shovels, sand buckets, and paint a sign showing where they are. Other signs should indicate first-aid equipment and hand rails. For your convenience I have made this tabulation:

White parts show application of luminous paint

Signs—Exit, caution, high voltage, danger, air-raid shelter, road signs, arm bands.

Switches—Electric lights, control switches for machinery, oil burners, gas burners, oil furnaces, gas furnaces, fuse boxes.

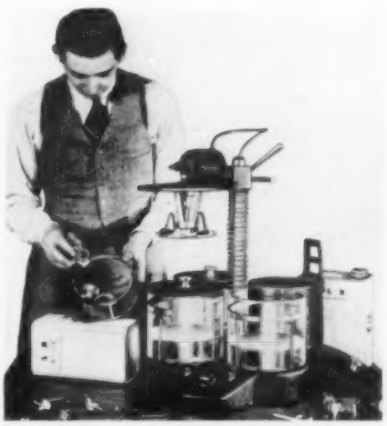
Valves—Gas meters, mains, stoves, heaters, storage tanks; oil pipelines, refrigeration lines.

Precautionary — Marking aisles or paths leading to safety, dangerous areas of machinery, direction to exits of air-raid shelters, locations of fire-fighting apparatus, location of first-aid equipment, hand-rails and stairs, elevator shafts or other openings, fire-alarm boxes.

You don't have to paint entire walls and ceilings with luminous paint. Painting a handle, switch, or outlining a large valve on a fire hydrant or storage tank — just enough to make the object visible —is safety insurance.

Cleanliness Is Next to Priority

WITH so many types of equipment and devices possessing the rarity of museum pieces, more attention is being given to maintenance than ever before. Everything that is doing a job is needed. This means parking meters, clocks, plant instruments, registers of water meters, as well as automotive and plant equipment. Anticipating the need, L & R Manufacturing Co., Newark, N. J., offers municipalities a cleaning machine, shown below, which does an hour's hand cleaning in ten minutes. You dissemble the parts, put them in the basket shown, a motor twirls the basket in a cleaning fluid that comes with the machine and then in a rinse and over a dryer—two or three minute per operation.



Cleans instrument parts in three minutes

YOUR OFFICE EQUIPMENT

is aiding the Battle of Production

—keep it in fighting trim

In lending speed to the obtaining of facts necessary to the management of essential industries, modern office equipment is playing a most important part. Automatic business machines are saving vital hours in the preparation of the plans, records, reports, orders, and analyses which help to guide, direct, and control the forward march of our war production.

The continued efficient management of all important industries depends to a large degree on the steady and uninterrupted flow of accurate records. It, therefore, becomes the responsibility of every office worker to see to it that all office appliances and machines are properly cared for and kept in first class condition.

Remember, your office equipment is helping to win the battle of production.

INTERNATIONAL BUSINESS MACHINES CORPORATION

Offices in *Principal Cities*

Buy War Bonds and Stamps. Help win the war for FREEDOM.

Blue Ribbon Accounting System

By WILL E. GIBSON
City Auditor, Portland, Ore.

THE city auditor of Portland, Ore., has four principal duties. He is the accounting and auditing official of the city, clerk of the city council, city assessor for local improvements, and he conducts city elections.

In view of this broad territory of responsibility, it was considered desirable to organize each phase of the work, mechanize it where economical, make the accounting operations add up to a final total of receipts and expenditures, and write out the fully story in the shape of office manuals for the guidance of all employees—especially newcomers. The work has been done and now we have four manuals, totaling 675 pages, outlining our complete procedure. As a result of the work performed, including the production of these manuals, I received the Louisville Award for Distinguished Public Service in 1940. One of these manuals outlines the modern semi-accrual accounting system of the city of Portland. The entire system is controlled by one general ledger which is manually posted.

The modern accounting system, utilizing machine methods and conforming to the best standards for municipal accounting, made possible preparation of the first balance sheet in the city's history. It provides proper controls over the city's 43 funds, none of which had even been reflected in a general ledger prior to 1940. The system furnishes detailed data on the state of the municipality's finances at any time. Each fund is listed and explained in the manual, with full and complete reference to charter and ordinance provisions, purpose of the fund, source of revenue, and objective of expenditures. The manual describes in detail each ledger, the classification of accounts, and the procedures to be used in opening, posting, and closing the ledgers; it explains the various journals, registers, and posting media; and it contains 111 illustrative journal entries.

A description of the purchasing and inventory work indicates the vital use made of punched cards in the disbursement side of our accounting procedure.

As soon as a purchase order is issued, the machine accounting and statistical division of the auditor's office punches a purchase order tabulating card. This card, along with many others, is listed on the IBM alphabetic electric punched card accounting machine and a control sheet is automatically prepared for posting to the appropriation ledger. The cards are sorted automatically and arranged in purchase order and fund sequence and are then placed in the alphabetic machine where the "Purchase Order Register" is listed automatically. The purchase order tabulating card is then placed in the purchase orders outstanding file where it remains until cleared by the issuance of an audited voucher covering the payment of the claim.

The voucher is forwarded to the machine division where a tabulating card is punched. This card serves as the medium of preparing the control sheet listing for posting to the appropriation ledgers. It is then posted to the audited vouchers payable register. By the use of the IBM Collator, the tabulating card is the medium automatically pulling the purchase order card from the purchase orders outstanding file. This file is analyzed periodically.

The pulled purchase order card is then used to prepare the "purchase orders liquidated register."

The next step is to prepare the warrant for the vendor. A disbursement card is punched from the copy of the warrant. When the warrant is cashed, this card is pulled from the outstanding file and used to prepare the "Treasurer's Warrants Paid Register." It is also used to adjust the fund balance as shown on the treasurer's daily balance report, reducing the warrants outstanding and the cash balance.

The inventory division scrutinizes all vouchers, and when an article of equipment is purchased it is recorded on the property journal voucher. This document is the medium for punching the property ledger tabulating card. At the end of the month all cards affecting the property ledger—acquisitions, disposals and transfers—are sorted into proper sequence to be used for posting the property register.

A duplicate of each property ledger card serves as a statistical record and is the basis of many tabulations and studies.* Equipment is only one step removed from cash. Every accounting safeguard used for the protection of cash is used for the control and protection of equipment against loss.

In addition to the purchasing and property inventory work, the following accounting and statistical operations are being performed by tabulating machines:

- Accounts Payable
- Communicable Disease Records
- Departmental Bill Register
- Disbursements
- Encumbrances
- Inventory Traffic Control Devices
- License Bureau Delinquencies
- License Bureau Notices
- Mortality
- Parking Violations
- Payroll
- Payroll Checks
- Pension Register
- Personnel
- Receipts
- School Nurse Activities
- School Physical Findings
- Traffic Accidents
- Traffic Citations
- Warrant Register

The full accounting system of the city of Portland comprises 188 ledgers in all funds and 26 journals. The journals are written by hand, by typewriter, or by International Business Machine cards. As stated, all subsidiary ledgers are controlled by the general ledger. At the close of the month, when trial balances are taken, they are listed on the balance sheet which becomes the combined balance sheet of the city.

Clerk of Council

As Clerk of the City Council, I

* "Centralized Control of Equipment Makes Council a Wiser Boss," by R. E. Riley, THE AMERICAN CITY, July, 1940, pp. 57, 58.

At the DENVER WATER BOARD

OF VITAL INTEREST TO EVERY A. W. W. A. MEMBER

Every step and operation in the entire billing and collection procedure has been shortened by machine operation. Peaks and valleys of work have been levelled. Cash receipts come in far more evenly through the year. Delinquencies have been reduced below one-half of one per cent at the end of quarterly periods. The officers of the board now have the means for sound financial administration and control.

. . . from the story by Mark L. Mulligan in this issue of AMERICAN CITY.

". . . sound financial administration and control!"

● Punched cards and Remington Rand Tabulating Machines have helped the Denver Water Board perform a modern miracle.

No more peak loads of billing, every three months. No more long lines of customers, either—no more peak loads in the cash-receiving department. Instead, a simplified cycle billing plan with billing and collecting going on every day of the year.

Most of Denver's water customers are on a flat-rate basis—ideal for punched-card accounting. But, even if *all* the customers in your city are metered, the Remington Rand punched-card accounting plan is *still* ideal . . . for a sensational new development, the Remington Rand Spot Punch*, lets the meter-reader punch a card right on the spot, eliminating the "bottleneck" of separate transcription of the meter reader's entries.

The Spot Punch* is one of the most exciting advances in the punched-card art—yet it is just another Remington Rand "first" in the improvement and simplification of the punched-card method of accounting, just one more proof that Remington Rand's municipal accounting experience is broad and impartial and at your service.

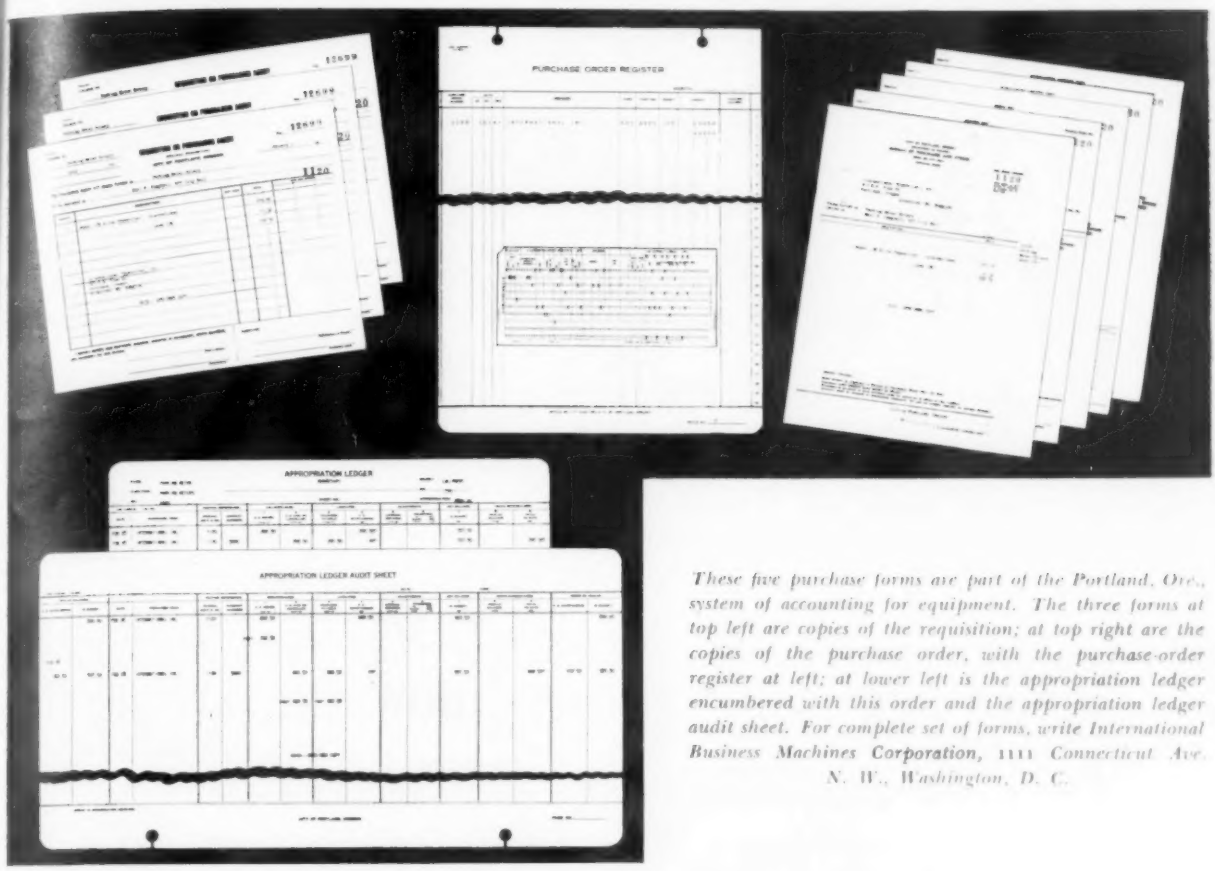
Call on us today, either at our nearest branch office or direct to headquarters of the Tabulating Machines Division of Remington Rand at Buffalo, New York. Get in touch with us today, won't you?

*U. S. Patent Pending.

Today...Look into REMINGTON RAND Punched-Card Accounting AND TABULATING MACHINES

(The Machines you can rent or BUY with impressive savings either way)

When you write for that catalog, kindly mention THE AMERICAN CITY.



These five purchase forms are part of the Portland, Ore., system of accounting for equipment. The three forms at top left are copies of the requisition; at top right are the copies of the purchase order, with the purchase-order register at left; at lower left is the appropriation ledger encumbered with this order and the appropriation ledger audit sheet. For complete set of forms, write International Business Machines Corporation, 1111 Connecticut Ave. N. W., Washington, D. C.

am charged with the responsibility of receiving, filing, and listing documents on the council calendar, reporting and transcribing council minutes, and indexing documents for future reference. With respect to the last, a comprehensive index with its numerical code and subject classification chart has been worked out for a period of ten years. These documents later are transferred to the vaults of the city and are kept under constant control through the use of appropriate index cards.

Local improvement procedure varies with every city and town in the United States. It is a complex procedure involving a great many legal and clerical steps. In order that no steps are missed, thus causing delay and expense, a complete procedure has been worked out covering every phase of assessments for ornamental street lighting, sewers, sidewalk repairs, street and plot vacations, street improvements.

Elections

The city elections are conducted every two years. The election procedure, like local improvements, is extremely complicated. To avoid mistakes, a procedure arranged in chronological order has been developed, naming each step and each form involved, together with cross references to all the laws governing city elections. The simplification of this situation has proved beneficial and is recom-

Parking Meters in 34 Cities Reported in the Municipal Year Book

NUMBER OF CITIES WITH PARKING METERS AND AVERAGE MONTHLY REVENUE PER METER, BY POPULATION GROUPS: FEBRUARY 1, 1942

Population Group	Total Cities in Group	Cities Having Meters		Number of Cities With Each Type of Meter				No. Cities With Some Penny Meters	Monthly Revenue October, 1941	
		No.	Per Cent	Automatic Only	Manual Only	Both	Type Not Reported		No. of Cities Reporting	Average Revnue Per Meter
Over 500,000	14	4	28.6	2	1	1	0	1	4	$8.58
250,000 to 500,000	23	12	52.2	9	3	0	0	1	11	8.44
100,000 to 250,000	55	35	63.6	16	12	7	0	7	33	6.45
50,000 to 100,000	107	41	38.3	22	13	5	1	7	39	6.18
25,000 to 50,000	213	64	30.0	28	34	2	0	8	54	6.78
10,000 to 25,000	665	103	15.5	61	39	2	1	14	91	5.04
5,000 to 10,000	965	61	6.3	28	32	1	0	41	38	4.77
Under 5,000	*	27	*	8	19	0	0	9	12	3.02
All cities	*	347	*	174	151	18	2	88	282	

* The Bureau of the Census classifies as urban places only those with more than 2,500 population, but there are several places with parking meter installations that fall outside this classification. Therefore no "per cent of total" calculations have been made in this table for the smallest cities.

WARTIME ACTIVITIES

create new responsibilities for all municipal departments

WAR INDUSTRIES

ARMED SERVICES

CIVILIAN DEFENSE

Modern Accounting Will Help You Control the Cost of Increased Municipal Services

Municipal governments, faced with increasing financial burdens and growing personnel problems due to war activities and civilian defense, find modern accounting a great aid in meeting these wartime conditions.

By installing modern budgetary accounting procedures, they exercise better control of costs, expenditures and commitments; by adopting more efficient tax billing and collecting methods, they save taxpayers time and money.

Burroughs' long experience and intensive studies of today's municipal accounting requirements are available to any municipality. Call the local Burroughs office. Or, if you prefer, write direct to—

BURROUGHS ADDING MACHINE COMPANY • DETROIT, MICH.

Burroughs

LEADITE

Trade Mark Registered U.S. Pat. Office

The Pioneer Self-Caulking Jointing Material for Bell and Spigot Water Pipe

Products

LEADITE and the following tools and equipment for use with LEADITE:

BRAIDED JUTE, JOINT RUNNERS, GASOLINE and WOOD BURNING MELTING FURNACES, POURING LADLES, POURING POTS, YARNING IRONS and METAL POURING GATES.

Description

Leadite is principally used for making joints in cast iron bell and spigot water mains; is shipped in powder form in sacks containing 100 pounds.

Users

Water works superintendents, engineers, contractors, mines, railroads and industrial plants all over the world use Leadite. Thousands of miles of pipe jointed with Leadite are in service.

Method of Use

The joint space is first "yarned" and the Leadite is melted and poured into the joint, but requires no caulking. Leadite melts at approximately 250° F. Lead melts at approximately 620° F.

Comparative Quantities

One hundred pounds of Leadite are equivalent to approximately four hundred pounds of pig lead based on the joints being made the same depth with either material. It will be easy to figure the approximate quantity of Leadite required for any given quantity of pipe by referring to our Reference Table, copy of which we shall gladly send to you upon request.

Comparative Cost

Under normal conditions, the economies effected by the use of Leadite save approximately 50% to 75% over the method which requires caulking, owing to the saving effected in material and labor.

Saving

Because Leadite saves on the items of caulking charges, digging of large bell-holes and reduces cost of trench pumping to a minimum. Leadite eliminates most every superfluous operation in jointing cast iron water mains, thus permitting the work to be completed with the least amount of effort.

Tools

As no caulking is required, fewer tools are needed.

No Caulking

Leadite joints require no caulking because Leadite adheres to the pipe from the yarn or jute out to face of bell, making a watertight bond. However, a Leadite joint may be melted or cut out at any time if desired in making connections, etc.

Durability

Leadite has been tested and used for more than 40 years and experience has proven that Leadite joints improve with age.

Expansion and Vibration

Leadite is used with excellent results under railroad tracks, highways and over and under bridges where severe vibration has demonstrated the value of using Leadite on this class of work.

Utility

Leadite is very easy to handle. It is used on all sizes of pipe from four to eighty-four inches in diameter and under all conditions and pressures encountered in water works construction.

Electrolysis

Leadite resists electrolysis.

Damage Suits

Claims for damages caused by joints blowing out are reduced because Leadite joints, if properly made, will not blow out under any pressure common in water works construction.

Transportation

Considerable freight charges are saved because Leadite is light in weight. This also means a saving in cartage and handling on the work because you move approximately one-fourth the weight of jointing material.

Delivery

We make prompt shipments of Leadite in any quantities from stock.

Fuel

Saves fuel because you melt approximately one pound of material instead of four, and less heat is required to melt Leadite than is needed to melt lead.

Be sure it is Leadite and not something "Just as Good"

THE LEADITE COMPANY

Girard Trust Company Bldg., Philadelphia, Pa.

No Caulking

Planning a Pressure Pipe Line?
CONSULT A CO-EFFICIENCY EXPERT

He'll tell you:

"To maintain a permanently high carrying capacity your best pipe line investment lies in concrete."

And your first choice would naturally be Lock Joint Reinforced Concrete Pipe. Its dense, concrete walls form an unrelentingly smooth line of defense against Tuberculation and Corrosion, the aggressive surface diseases that with time attack and cripple most water supply lines. Tuberculation and Corrosion cannot leave their mark on Lock Joint's moulded concrete, cannot impair the hydraulic efficiency of these pipes.

Lock Joint Pipe does maintain a high carrying capacity for life but its very construction and design insure longer life, longer serviceability. Encased within the protective coat of concrete lies a water-tight steel cylinder, reinforced by encircling steel bars. This is the backbone, these are the ribs that enable each Lock Joint Pipe to withstand indefinitely the forces of pressure, weight and shock. A more useful life—and a longer one!

Whether your project is large or small, your 'phone call, telegram, cable or letter to any of our offices will bring an immediate response.

LOCK JOINT PIPE COMPANY

Established 1905

AMPERE, NEW JERSEY

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White Plains, N. Y. • Valley Park, Mo. • Cleveland, Ohio • Hartford, Conn. • Navarre, Ohio

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

SCOPE OF SERVICES

Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply Mains as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous lines.

When you write for that catalog, kindly mention THE AMERICAN CITY.

Traffic Control and Facilitation

Conducted by Traffic Control & Facilitation Committee, Institute of Traffic Engineers, 60 John St., New York

Mervyn A. Kraft, Chairman; Virden A. Rittgers, Vice-Chairman; David M. Baldwin, Martin E. Bruening, Stephen Butterfield, Edgar F. Copell, John E. Ecker, Fred W. Fisch, Emmett E. Kirwan, Foster M. Kunz, Alger F. Malo, Walter W. Matthews, John R. Moriarty, Henry W. Osborne, I. S. Shattuck, Matthew C. Sielski, Richard Siver, John L. Towers

Employee Transport Plan for War Industries

By DWIGHT MCCRACKEN
Director, Traffic and Safety Bureau,
and BRYANT BURKHARD
Traffic Consultant
Liberty Mutual Insurance Co., Boston, Mass.

WAR workers must go to and from their jobs, and thousands of them use their automobiles from choice or necessity. Unlimited use of individual transportation by war workers will result in wholesale absences due to lack of tires, gasoline, or both.

To aid insured war plants to forestall this possibility, employee transportation practices were surveyed in policy-holder plants. These surveys revealed three basic weaknesses in our current reliance on individual transportation of employees in war industries.

1. Waste of irreplaceable motor vehicles, tires, fuel, and parts

2. Waste of time and man power through needless congestion and accidents

3. Vulnerability to sabotage and air attack

A brief discussion of the conditions creating these weaknesses is essential to a full understanding of the solutions given later.

Waste of Materials and Men

It was found that the average number of workers per car ranged from 1.3 to 1.7, while the average capacity per car is 4.5 to 5. Thus, over half the total transportation capacity is wasted! Crawling in long lines of stop-and-go traffic on access routes uses gasoline and tires much faster than normal driving. A survey at one plant revealed a weekly waste of 35 sets of tires, 64,400 gallons of gasoline, and 14 vehicles.

Driving in congested traffic causes irritation and needless fatigue to war workers whose highest efficiency is needed on the job. (The average speed over the last three miles to one plant was five miles per hour!)

Vehicular conflicts caused by the large number of employee vehicles results in costly accidents, lost-time injuries, and delayed production. (One plant lost three key men in as many weeks in fatal traffic accidents while driving to and from work. Another averaged one lost-time injury per month from automobile accidents in the parking lots and adjacent roadways.)

The present delay and congestion caused by war-plant traffic in some cases affects the entire traffic circulation of the city. It delays delivery of important truck shipments, including replacement parts and new machinery needed on production lines. In this war effort, roadways have become conveyor belts for assembly lines. In one airplane engine assembly plant, 400 parts are brought by truck *on a time schedule* from 400 separate subcontractors.

Where adequate off-street parking space is not available, the present system of employee transportation creates jams of parked cars in streets around the plant, resulting in confusion and inefficiency.

In cases of fire, explosion, or other catastrophes during shift changes, emergency vehicles cannot reach the plant because of employee vehicles traveling two and three lanes deep on access roads. Fires or explosions caused by sabotage or enemy air raids will most likely be planned for shift-change times in order that damage cannot be minimized by rescue vehicles. Also, accidental emergencies frequently occur at such times.

The large concentration of private automobiles in parking areas adjacent to war industries aids enemy airmen to find vital targets. Even at night, the tops of solidly parked cars reflect skylight much as does a body of water. In many cases vehicles occupy more ground area than the plant buildings.

This same concentration of parked cars itself invites bombing and the destruction of hundreds of irreplaceable vehicles.

Long lines of cars going to and from the plant at shift-change times direct enemy airmen to the plant site in daylight or darkness.

Long lines of employee drivers also afford a profitable strafing target for enemy airmen who know that skilled workers cannot be easily or quickly replaced.

Objectives Important But Difficult

At each plant studied it seemed to our traffic engineers that all these various problems could be solved completely or partially through the achievement of three major objectives:

1. Plan now, with the aid of traffic and transit authorities, to provide a system of bus and rail transport for every district in the survey area where facilities can be obtained.

2. In those districts where such facilities cannot possibly be obtained, arrange a definite program of "doubling-up" by employees to increase the number of workers per private automobile and thus prolong the availability of the only type of transportation.

3. Work out a traffic control and parking plan to move traffic more freely with less hazard on the plant premises and access roads.

Needless to say, these three objectives are easier stated than achieved. However, with the factual data obtained from the questionnaire survey of employee home locations, work-hours, and modes of transportation; and from field studies of speed and delay, volume, accidents, and parking practices, the following solutions were worked out and applied with the aid of war plant officers, transit officials, and the traffic engineers and police authorities of the localities.

WE'VE *Streamlined*

OUR NAME
FOR YOUR CONVENIENCE

INTERNATIONAL FILTER CO.

INFILCO

INCORPORATED

The decision to streamline our 48-year old name will not surprise our many friends in the Water Works field. They know we've outgrown it. In fact, the word "filter" is no longer even remotely descriptive of 70 per cent of the equipment we manufacture.

For many years the trademark INFILCO has identified rate of flow controllers, chemical feeders, hydraulic controls, mixing equipment, clarifiers, water softeners and zeolites, as well as filter equipment, engineered and manufactured by this organization for the Water Works field.

INFILCO

PRODUCTS
For Water Works

Aerators
Accelator Softeners and Clarifiers
Chemical Feeders and Proportioners
Clarifiers and Settlers
Coagulators
Filter Gauges
Flow Controllers and Gauges
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Hydrodarco Purifiers
Lime Slakers
Mixing Basin Equipment
Operating Tables
Recarbonators
Sampling Devices
Sewage Treatment Equipment
Underdrains
Venturi Tubes
Water Filters and Softeners
Zeolites

INFILCO
INCORPORATED

325 W. 25TH PLACE, CHICAGO, ILL.
Formerly INTERNATIONAL FILTER CO.

Choose Among These Solutions

Doubling-up Methods—One method of facilitating doubling-up by employees in private cars is the establishment of a "Rides Bureau" at the plant. Here the employee questionnaires previously mentioned are filed by location and workers wishing a ride, or a passenger can get the name of a prospect living near him from the attendant.

Less voluntary but more certain is the doubling-up plan based on the use of district parking lots. By dividing into districts the area from which a plant draws its workers and providing a parking-lot "gathering point" in each district, the number of vehicles using roadways and parking space near the plant can be cut to a minimum. Under this plan all cars in a district drive to the district lot where half the cars are parked and all employees continue to the plant in the remaining cars. By dividing the cars into two equal groups that alternate weekly in driving through to the plant, this plan is made both fair and practical. Also, the plan operates automatically so that no riders are dependent on any particular driver who might be sick or have a flat tire. If bus or rail facilities do not exist and cannot be obtained, this plan provides private automobile transportation for all employees in a given district while using only half the usual number of vehicles.

This means that only half the usual amount of rubber, gasoline, oil, and parts is needed to get workers to the plant and back; that only half the usual number of vehicles are exposed to destruction from the air en route or at the plant; that only half the usual amount of parking space will be occupied around the plant to reveal its military importance. Traffic authorities have been found very cooperative in aiding plants in finding and designing space for district parking lots.

Buses—The number of vehicles can be cut much more than 50 per cent if bus or rail transportation is available from district gathering points to the plant. Where districts are large in area, some workers may still have to drive relatively short distances to the district parking lot before taking the bus to the plant. Where district areas are small, private cars may not be necessary; workers can walk to the district gathering point.

Although basically simple, any system involving the use of district parking lots requires careful planning and supervision.* The importance of cooperation between traffic and transit officials and plant management cannot be overemphasized.

REPRINTED FROM "VICTORY," PUBLICATION OF OFFICE FOR EMERGENCY MANAGEMENT.

Stagger Hours—It is easier to obtain bus or rail transportation if shift-change times are adjusted to come at off-peak hours with respect to nearby business and retail districts. In most communities every available bus and street-car is needed to handle the morning and evening rush periods in central business districts, usually 7:30 to 9 A. M. and 4:30 to 6:30 P. M. Between these hours, reserve equipment which normally lies idle can transport workers from district gathering points express to the plant and bring back other workers replaced by the incoming shift.

In large industrial areas where simultaneous shift changes of many plants, even at off-peak hours, create too great a load for available reserve buses or street-cars, the shift-change times of various plants in the area can be offset one from the other. Thus, all plants may be served over a period of two or three hours. In adjusting industrial shift changes avoid, if possible, the closing hours of nearby schools.

Even in large isolated single plants, the spreading of shift-change times by departments, floors, or some other division of work makes it easier for buses to handle the load. If private vehicles are used, it cuts down the number of vehicles using the access roads and parking areas. It also relieves congestion in elevators and washrooms.

Traffic engineers and other traffic officials can aid plant management greatly by planning staggered-hour systems between plants or within a single plant to provide proper coordination with the many outside elements involved. In fact, traffic authorities usually take the initiative in such matters.

Traffic Control Measures—Where large numbers of employees must commute by private automobile either because of inadequate mass transportation facilities or failure of employees to double-up, special traffic-control measures are necessary.

Traffic Routing—Use all available routes leading to the plant to distribute the traffic load evenly. Where possible, designated military routes should be avoided, although these are often the only routes leading to the plant vicinity and, in such cases, the traffic control measures described later become all the more important. Employee traffic can be attracted to little-used alternate routes by installation of "one-way" regulations; installation of "stop" signs to make the proposed alternate a "through-way"; improvement of signal timing to provide more continuous flow; restriction or elimination of parking, either from angle to parallel or from parallel to no-parking at narrow sections of the proposed route; special turning restrictions to reduce delay from left-hand turns; use of lane markings to reduce "weaving" and "turning from wrong lane"; physical changes such as the widening or interconnecting of certain street lengths to form a continuous through route; and distribution of route maps to employees by plant management calling attention to available alternate routes which have been made more attractive by the above methods.

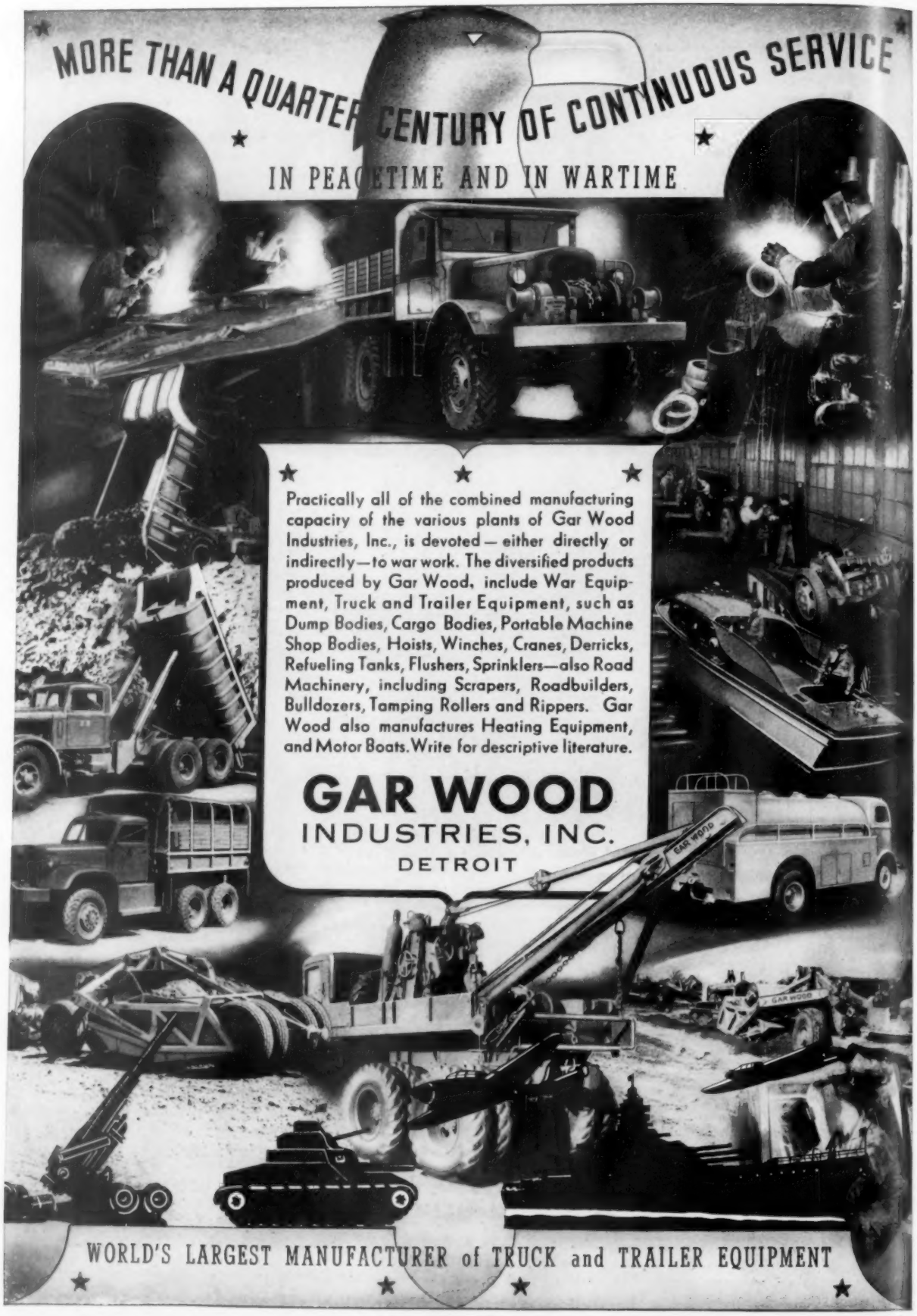
Funds for building new or improving old access and by-pass routes to war plants or military posts have been established by the Defense Highway Act of 1941. These funds can be obtained through your State Highway Department. It is important to note that funds for off-street parking facilities have also been included to aid war-plant traffic.

Clearing Roads for Emergencies—When shifts are changing and roads leading to industrial plants are crowded with cars two and three lanes deep, it is impossible in case of an emergency for all cars to park at the roadside and still leave room for fire apparatus and ambulances. Side streets and driveways into available vacant areas abutting the access roads should be located in advance and plainly marked "emergency exit."

Employee vehicles should not be permitted to leave the plant when there is any possibility of meeting the next shift coming in. All traffic was blocked for five hours on a West Coast emergency military route when this precaution was overlooked following an air raid alarm that came just before shift-change.

Control of Public Traffic—To keep curiosity seekers and other non-essential vehicles from blocking access roads during fires or explosions at war plants, organize a system of "interceptor posts" for quick action in an emer-

* Details of the location, design and operation of these lots can be obtained gratis through the authors.


MORE THAN A QUARTER CENTURY OF CONTINUOUS SERVICE
IN PEACETIME AND IN WARTIME
Practically all of the combined manufacturing capacity of the various plants of Gar Wood Industries, Inc., is devoted — either directly or indirectly — to war work. The diversified products produced by Gar Wood, include War Equipment, Truck and Trailer Equipment, such as Dump Bodies, Cargo Bodies, Portable Machine Shop Bodies, Hoists, Winches, Cranes, Derricks, Refueling Tanks, Flushers, Sprinklers—also Road Machinery, including Scrapers, Roadbuilders, Bulldozers, Tamping Rollers and Rippers. Gar Wood also manufactures Heating Equipment, and Motor Boats. Write for descriptive literature.
GAR WOOD
INDUSTRIES, INC.
DETROIT
WORLD'S LARGEST MANUFACTURER of TRUCK and TRAILER EQUIPMENT

gency. These posts should be established at intersections to form a complete cordon around the industrial area covering all roads leading to it. Each post should be numbered. State, county, and local police should arrange for plant guards to man these interceptor posts until the police can get there.

Parking Control—It is undesirable to park all cars in one large area and/or too close to plant buildings. A series of smaller lots are more easily operated, offer a less profitable target, and involve fewer traffic conflicts resulting in accidents. Parking lots must always be far enough from plant buildings to allow free operation of emergency equipment.

Pedestrian Protection — Establish overpasses, safety islands, traffic control signals, and crosswalks wherever large numbers of plant employees face accident hazards in walking to and from the plant.

Intersection Control—Arrange for plant police or regular police to control traffic manually during shift-change times so that employee vehicles will be given the right-of-way over other traffic at intersections in the vicinity of the plant. Turn off automatic signals during officer supervision of traffic. If long lines of employee vehicles are not stopped frequently for minor cross flows, the access routes will be used much more efficiently and non-essential traffic will be discouraged from coming through the area at shift-change time.

A study of the transportation problems in any large industrial area, in the light of today's shortages, will reveal that every available type of transportation must be used efficiently. Each city will find its solution in a combination of the measures which have been discussed.

EDITOR'S NOTE.—Details regarding special employee transport survey methods and forms may be obtained from the Highway Traffic Advisory Committee to the War Department, Washington, D. C.; the Institute of Traffic Engineers, 60 John St., New York City; the Liberty Mutual Traffic and Safety Bureau, 175 Berkeley St., Boston; National Conservation Bureau, 60 John St., New York City; and others.

Traffic Engineering Today

TRAFFIC engineering now faces a change of perspective.

Shift your major thinking from signs, signals, and markings for a moment, and consider the new picture. Here's one side:

1. Automobile manufacture abolished
2. No crude rubber for new or recapped tires before 1945
3. Dwindling volume of motor car traffic

Here's the other side:

1. Necessity for uninterrupted movement of war workers, war materials, and farm products
2. Forced increase in use of mass transportation
3. Inadequacy of mass transportation facilities in and about many war industrial concentrations now largely dependent upon the motor car

D. GRANT MICKLE
President, Institute of Traffic Engineers

A Good Transit System Is a Treasure

By E. A. PALMER
City Transit Section
Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.

MANY communities are already finding the local transit lines severely pressed to handle the increasing patronage. Large cities with comprehensive transit systems suffer least because they have rolling equipment. The problem is serious in small cities.

The transit operating companies are restoring to operating condition every possible discarded street-car or bus. In 1941 over 500 new electric street-cars, 430 trolley coaches, and 6,000 gas and diesel buses were ordered to help handle the rising tide of transit passengers. In some cities patronage has increased 50 per cent over that of 1940 and is still going up with the expansion of war plants. This year, probably 10,000 or 12,000 new vehicles will be purchased.

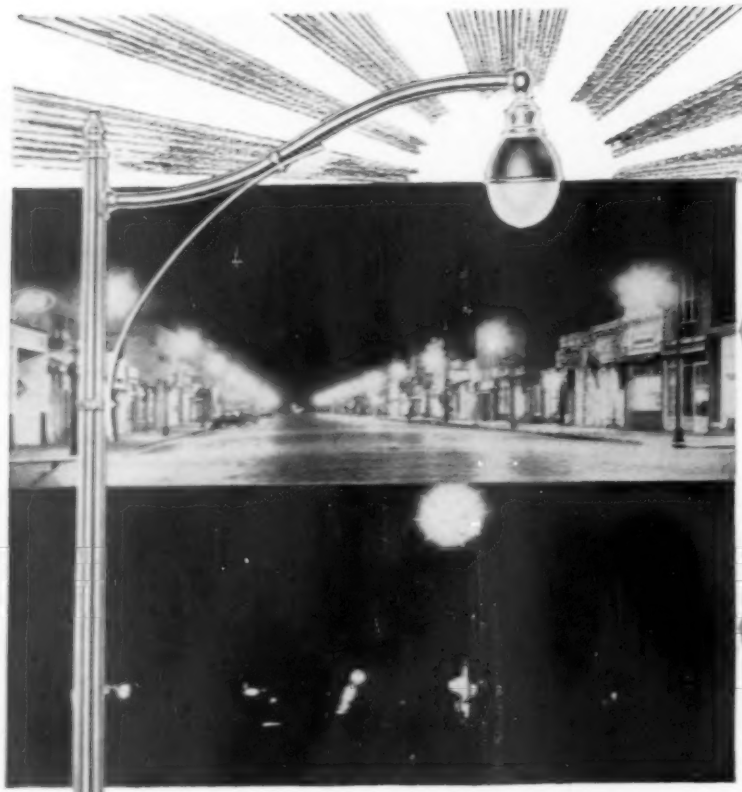
In the first world war street-car service carried people to and from work. The Emergency Fleet Corporation financed the purchase of many hundred new street-cars for service to shipyards. Cars much improved over the ones used at that time are now available. Their speed is as high as can be used in street traffic. The acceleration and deceleration though high is smooth. High schedule speed, excellent lighting, comfortable seats, ventilation with thermostatic temperature regulation, and other conveniences make these cars popular wherever operated.

In Pittsburgh 401 of these modern cars increased speed to 10 per cent, reduced track expense 21 per cent, decreased accidents 25 per cent, and before the war boom increased patronage 8 per cent. The modern street-car excels in moving masses of people quickly and safely.

Over 3,000 trolley coaches are in operation in 43 cities and in 26 different states from coast to coast and from Canada to the Gulf of Mexico. The trolley coach has the rubber-tired chassis of the bus and the electric propulsion plant of a street-car. That is why it is quieter than any other vehicle in the street and permits curb loading and passing of double-parked vehicles. Well-lighted, seated, heated, and ventilated, it gives off no fumes, and is a favorite.

Approximately 7,000 modern electric vehicles are now in service in 60 leading American cities.

A 40-passenger trolley coach on the Seattle, Wash., transit system and one of the 400 Transit-Presidents-Conference cars operating in Pittsburgh



Safety lighting or this?

Which does Yourtown provide for the men working nights to HELP AMERICA WIN?

● To outproduce the Axis, there are citizens in Yourtown working all night every night . . . traveling to and from their jobs in the hours between sunset and sunrise—the very hours when most traffic fatalities occur (*the hours when 24,400 persons were killed on American streets and highways in 1941*)!

Look at the lighting on your streets. Does your system provide modern safety lighting for these important war workers—or is yours inadequate lighting, the kind that encourages accidents?

Since 1906 Union Metal has specialized in the design and construction of street lighting standards. But now our foremost job, like yours, is to help win the war. Therefore, immediate needs for lighting equipment cannot always be met, but our engineers are ready and willing to work with you in developing your program for future installations.

UNION METAL

KEEP 'EM FLYING

THE UNION METAL MANUFACTURING CO.
Canton, Ohio

Buy War Bonds and Stamps. Help win the war for FREEDOM.

Outdoor Lighting

Streets—Highways—Floodlighting

Military Deaths and Injuries on Texas Streets and Roads

"THE death of 1,979 persons from a single cause in a single state is serious enough in normal times," says Homer Garrison, Jr., Director, State Department of Public Safety, Austin, Tex., in his fourth annual report entitled "Texas Traffic Accidents 1941." He continues: "It becomes a major disaster at a time when human and material resources must be conserved for the defense of our Nation."

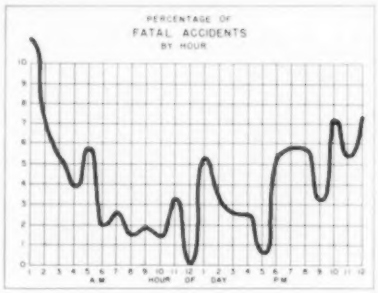
The report is made particularly valuable by the inclusion of accidents involving military personnel. Soldiers are being killed on Texas streets and highways at the rate of 10 per month, and civilians in military service at the rate of 7 per month; injuries are at the respective rates of 50 soldiers and 52 civilians. The 1941 toll of military personnel was 194 killed and 1,226 injured.

While gasoline and tire-rationing will cut deeply into the driving of the one-third of the population able to present no business reasons for driving, it is doubtful that the other two-thirds will curtail their driving as long as gasoline and tires are available. Thus the menace will remain. Traffic accidents are not merely a function of the number of cars on the street or road, nor of speed alone. Many other factors raise or lower the rate. While pleasure driving will diminish, business-bound automobiles, trucks, buses, and military vehicles will be moving.

Proof that the number of vehicles or the volume of traffic is not the sole or even the direct cause of more accidents is furnished by the annual statistics. In 1936, for instance, the vehicle miles traveled in Texas totaled 60 per cent more than in 1941; but the 1936 death rate was 60 per cent greater (not less) than in 1941.

What Killed Military Personnel

Only 48 per cent of the military traffic deaths in Texas involved collision of motor vehicles. The other 52 per cent met death from the following causes: running off roadway, 16 per cent; pedestrians, 14 per cent; fixed object, 10 per cent; overturning in roadway, 7 per cent; others, 5 per cent.



Showing that 50 per cent of accidents involving military personnel happened between 9 P.M. and 4 A.M.

These accidents, says the report, were not necessarily the result of congested conditions immediately adjacent to a camp site or army post. Records show that 19.5 per cent of the rural accidents occurred within 5 miles of the camp where the soldiers involved were stationed, while 20 per cent were over 100 miles from the camp with the average distance being 60½ miles.

It does not appear that the bulk of these accidents occurred while those involved were on official business, since 59 per cent of the rural accidents and 38 per cent of the urban accidents took place on Saturday and Sunday. This, together with the distances that accidents occurred from camp sites and hours of the day when the rate was highest, indicates that military personnel is involved in accidents most frequently when on leave.

Distance Rural Accidents Occurred from Camp	Per Cent of Total Rural Accidents
0-5 miles	19.5
5-10 "	16.4
10-25 "	16.4
25-50 "	15.7
50-100 "	11.9
over 100 "	20.1

The most frequently occurring violation or causative factor in accidents to military personnel is "Speed" or "Too fast for conditions." Limited time to get home and get back to the post has a tendency to cause the driver to "hurry" to his destination. "Driving on the wrong side," "Did not have right-of-way," "Stop sign violations and wrong turning movements," were the next factors and also indicate this tendency to hurry.

Dangerous Darkness

The chart gives the percentage of fatal accidents by hours, with 12 midnight to 1 A. M. the most hazardous. From 9 P. M. to 4 A. M., with least traffic density, 53 per cent of the fatal accidents occurred. During these hours half of all the 1,496 military-personnel accidents occurred; 70 per cent of them in clear weather.

Low-Cost Lighting

DUNN'S REVIEW lists 750 cities where war factories are building and thousands of workers are moving in—17,000 in one village of 530 inhabitants, for instance.

Consider the municipal problems which these abnormal population increases raise. These people must be housed, fed, garaged, protected—and controlled.

Good street lighting and lighting on highways between factory and business district are absolutely essential. Accidents, crimes, congestion, brawling are the certain penalties of neglect to furnish essential municipal services.

Economy will have to be exercised. True economy consists of providing an essential service in the most economical manner. Where possible, existing pole lines should be utilized. Where these are too short for adequate mounting height of the luminaire, or where the poles are loaded with power and communication lines, upsweep mast-arms can be installed. These mast-arms not only give greater mounting height than the pole alone would allow, but they also clear the existing wires and conductors. Here then is a quick practical method of obtaining modern street lighting at low cost. It is by such methods that essential services like street lighting in overpopulated places can be provided without cutting into strictly war production.

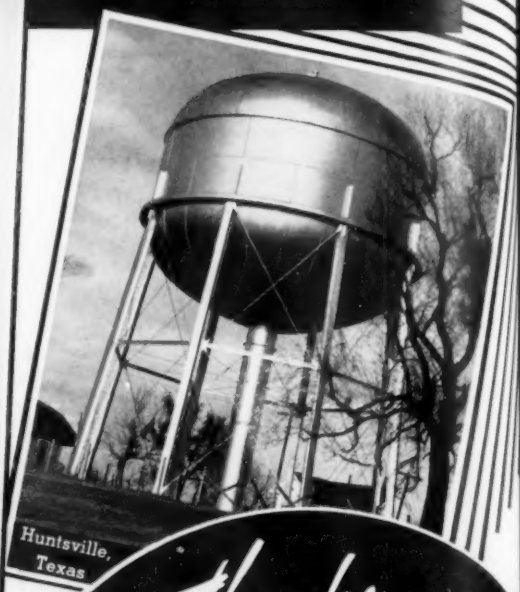
Superior outdoor luminaires of metal and glass are now being produced by the principal manufacturers. Simple metal poles are available for locations where there are no exisitng lines. Where there are existing poles, whether metal or wood, mast-arms can be placed by a small gang quickly.

Recent additions to the long list of municipalities enjoying...

UNIFORM PRESSURES
AMPLE SUPPLY AT PEAK DEMAND
UNINTERRUPTED SERVICE

Jennings, Louisiana

St. Joseph, Missouri

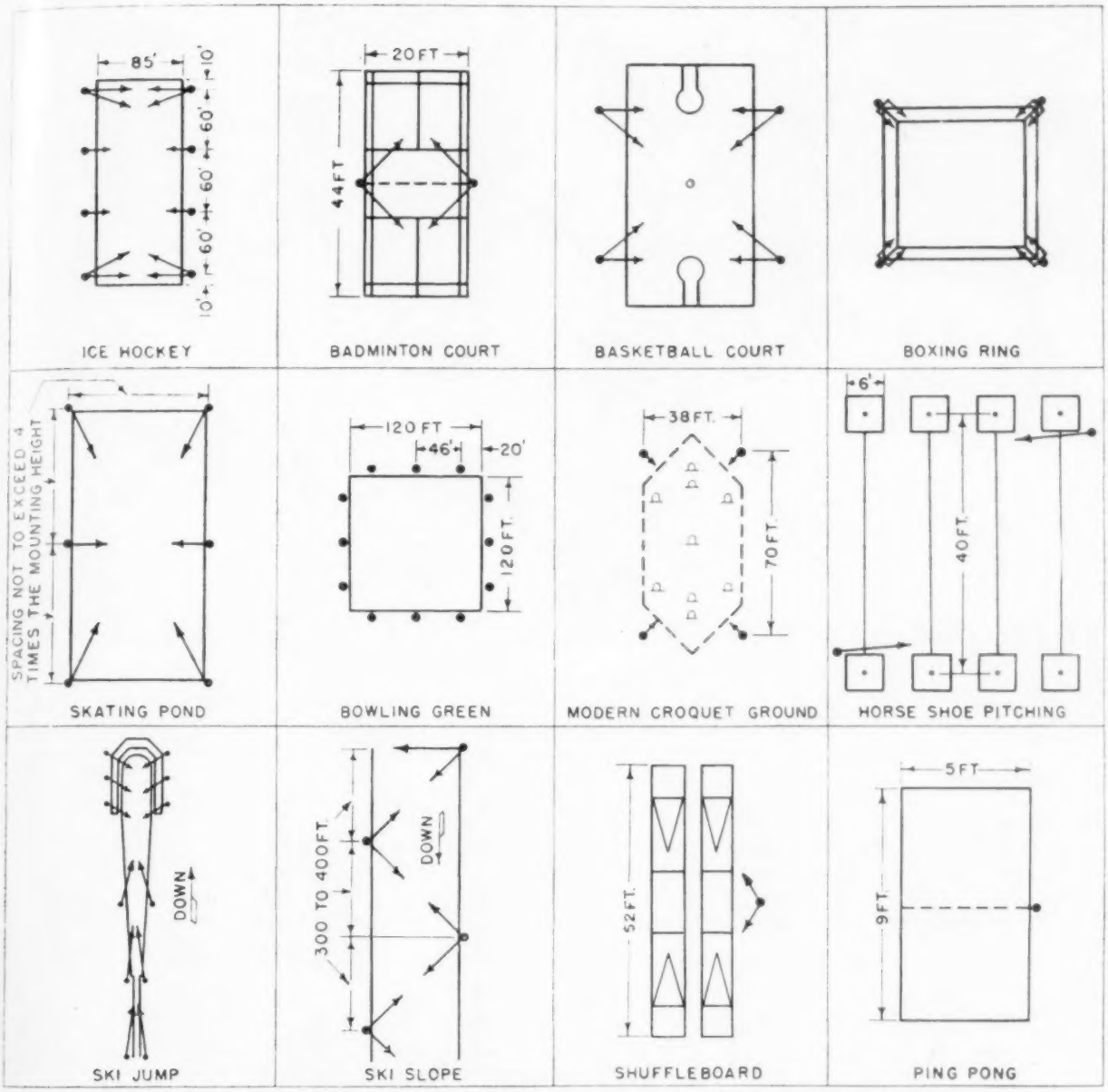

Huntsville, Texas

Independence, Iowa

Niagara, Wisconsin

-thanks
TO MODERN WATER STORAGE BY
PITTSBURGH
•DES MOINES

PITTSBURGH • DES MOINES STEEL CO.
PITTSBURGH, PA. 3412 NEVILLE ISLAND—DES MOINES, IOWA, 913 TUTTLE STREET
NEW YORK, ROOM 915, 270 BROADWAY · CHICAGO, 1216 FIRST NATIONAL BANK BUILDING
DALLAS, 1217 PRAETORIAN BUILDING · SAN FRANCISCO, 619 RIALTO BUILDING



Scientific Lighting Layout: dots are floodlamps, and arrows indicate direction of illumination

Correct Lighting for Popular Games

By R. J. SWACKHAMER
Illuminating Laboratory
General Electric Co.
Schenectady, N. Y.

A SHORT time ago an alarming report was issued by the Keeley Institute of Chicago. The war, it seems, has doubled the number of skilled workers seeking "the cure" for chronic alcoholism, and they now outnumber inebriate bankers and traveling salesmen.

This at first glance might seem to fall under the category of morals. Actually, the situation has less to do with morals than with the fact that millions of gregarious workers who would welcome relaxation of a less destructive nature have too few places to enjoy the companionship of friends.

The swelling populations of cities in boom zones have caught most of these communities with too few facilities for the number of people to be served. Wherever the war worker turns there are too many people waiting in line. If a war worker wants to go to a movie, chances are he'll find the "standing room only" sign out. Bowling alleys, in spite of the way they have mushroomed in some sections in the last few years, are usually filled to capacity in war-production zones.

In this war the skilled worker is truly the man behind the man behind the gun, and we need his all-out effort in order to win. Every worker spells manpower for the United Nations, and it's up to us to see that not one unnecessary hour is lost either through industrial accidents, traffic accidents, or through ill health.

Precision demands the utmost concentration—straining eyes, nerves, and body. With a national shortage of skilled labor, it has become necessary

Beyond..

THE SCOPE OF A SCREEN ANALYSIS

If one has the choice of sweeping a floor with a rake or a broom, obviously the broom will be the implement chosen. The prongs of the rake are plenty strong enough to remove the dirt from the floor but since they can't cover the entire surface their strength is wasted.

Just so with activated carbon in the water plant. That is, a carbon small in particle size and light in weight presents immeasurably more effective surface for removing taste and odors. We describe this property as "dispersion." For use in water plants, the dispersion of activated carbon represents a very important feature by working hand in hand with the carbon's activity for removing taste and odors.

Microscopic study reveals the physical characteristics of activated carbon. Work recently conducted by a commercial microscopist gives the following results in particles per gram for various activated carbons being offered for water treatment:

CARBON	Billions of particles per Gram	Average particle size (Diameter in microns)
A	10.0	3.85
B	28.4	2.7
C	72.0	2.0
AQUA NUCHAR	120.0	1.65

Since the ultimate particle size of AQUA NUCHAR Activated Carbon is extremely fine, it readily separates on dispersion. Many of these smaller particles are aggregates of still smaller particles so that the microscopic count gives us a more effective picture than a screen analysis in showing how these particles break away from one another to form individual units for thoroughly sweeping up taste and odor bodies present in water.

NUCHAR

INDUSTRIAL CHEMICAL SALES

DIVISION WEST VIRGINIA PULP & PAPER COMPANY

230 PARK AVENUE, NEW YORK CITY
35 E. WACKER DRIVE, CHICAGO, ILLINOIS
748 PUBLIC LEDGER BLDG., PHILADELPHIA, PA.
844 LEADER BLDG., CLEVELAND, OHIO.

Buy War Bonds and Stamps. Help win the war for FREEDOM.

to extend war workers' hours to as much as 12 hours a day or seven 8-hour days a week. Occasionally it is necessary for specialists to work 36 hours at a stretch.

This summer the great national pastime, taking a ride after dinner, will be denied war workers because of the shortage of fuel, tires, and automobiles. What are these men going to do?

The USO has been doing a fine job of furnishing healthful relaxation for our Army and Navy, but so far nothing has been done for our "first-line-of-defense" men. True, the government will organize various sports, but it will take a long time to set up separate relaxation headquarters in each war-production zone. Wouldn't it be more logical for each zone to set up its own recreational facilities? After all, who knows the specific needs of a city's workers as well as the city fathers themselves?

Most cities supply recreational facilities for daylight tennis, softball, baseball, horseshoes, etc. This takes care of recreation for regular shift workers during the summer, but with our production schedule already on a 24-hour-a-day basis, there are two more shifts to be considered. These men will have no opportunity for wholesome recreation—unless the cities light up their sports fields.

There's health and relaxation in horseshoes if you get a chance to throw them

The government seems to be sympathetic toward night recreation for war workers, and it seems reasonably certain that federal approval may be obtained for lighting of recreational areas close to a war industry. Floodlighting projectors made wholly of non-critical material are already available.

The group of diagrams on page 95 shows the best locations for the fewest floodlights to give the maximum amount of light for popular games.

Brighter Binghamton Is 83 Per Cent Safer

FOUR years of new street lighting in Binghamton, N. Y., showed a decrease of 83 per cent in night traffic fatalities—although daytime accidents increased.

Several years ago Binghamton began to take note of a gradual increase in night traffic fatalities as traffic multiplied. This compelled a revaluation of local street lighting—not merely as a crime discourager, but to improve traffic visibility. Binghamton officials, with lighting experts from the New York State Electric and Gas Corp., evolved a five-year plan for the improvement of lighting, street by street. It was planned to do a large part of the improvement during the first year, and to taper down each succeeding year until the fifth year, when the minimum amount of installation would be necessary.

To date, 23 miles of street lighting, using the General Electric luminaires, have been installed with about four more miles to go. The fact that the program is not complete makes the 83 per cent decrease in night fatalities on main and secondary traffic arteries even more impressive.

With many factories on a 24-hour basis, with three or four shifts, night traffic hazards have increased. During 1941, New York State as a whole had an increase in traffic deaths, accidents, and injuries greater than any since 1937. Commissioner of Motor Vehicles Carroll E. Mealey ascribed it to the traffic caused by the stepped-up industrial activity. It was at night that 1,345, or 55 per cent, of New York State's total fatal accidents took place. Binghamton's experience points the way to greater traffic safety in the country's many industrial centers and factory towns.

FANCHER M. HOPKINS,
Mayor, Binghamton, N. Y.

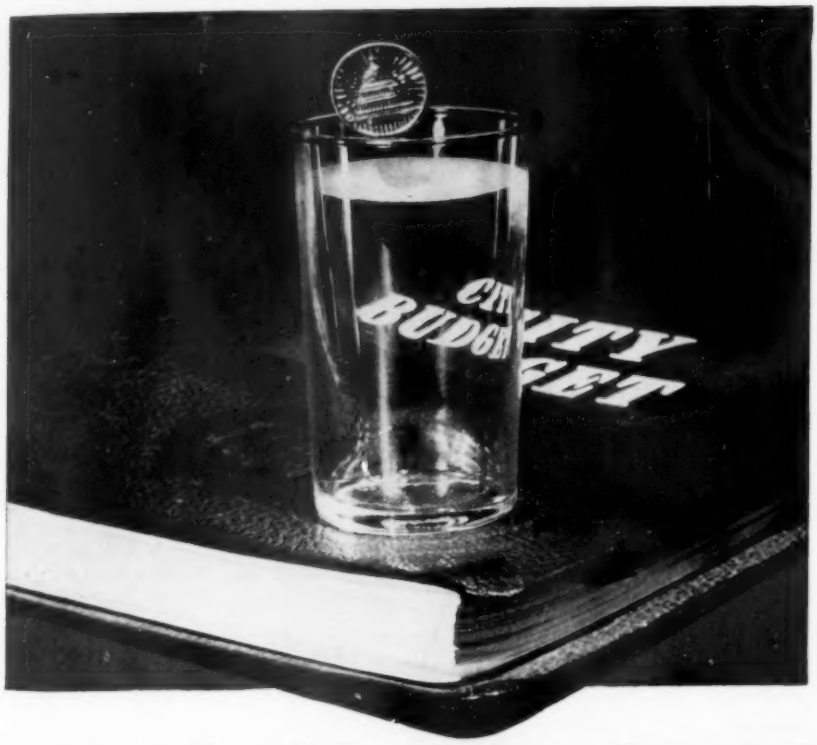
Sky Glow Must Go

PROBABLY the largest and brightest peacetime sky glow is provided by New York City and surrounding communities. This has been eliminated or thereabouts since May 18 when New York City-Army-Navy regulations went into effect. These prescribe: (1) all window light above horizontal screened; (2) all advertising lighting out; (3) all floodlighted signs out; (4) all outdoor theatre lighting except under the marquee out; (5) outdoor industrial lighting shielded; (6) all floodlighting out; (7) recreation areas use smaller hooded lamps; (8) all lights above 15th floor rooms blacked out; (9) shore lights not to be visible 1 mile at sea; (10) street, bridge, park lighting reduced and shaded.

In Memory of L. A. S. Wood

With a sense of personal loss, THE AMERICAN CITY notes the passing of L. A. S. Wood, Chief Lighting Engineer of the Westinghouse Electric & Mfg. Co., Cleveland, Ohio. For more than 20 years Mr. Wood was a steady contributor to the Outdoor Lighting Section of THE AMERICAN CITY, his most recent major article being "Street Lighting in Wartime a Public Responsibility," in February 1942, issue. An informed advocate of the best street lighting that modern equipment can produce economically, he will be missed by city officials and his other friends.

MR. CITY COMMISSIONER



Can you do this balancing trick?

Can you make the taxpayer's dollar and his individual water supply balance on the city budget—over a period of years?

No?

Then it's time to Centriline!* High time to recondition the interior of those water mains—to remove the clogging growth of tuberculation, the scars of corrosion. Once those agents of time and wear have gotten a foothold on the pipe wall—down go the carrying capacity and the efficiency of your water system. Off goes the balance! Time to put on a slick new lining the Centriline way; an inner jacket of protective cement that will permanently resist the invasion of tuberculation and corrosion and that will restore and maintain a high carrying capacity.

Recondition now and cut depreciation and pumping costs to a minimum. Presto—your main will be as good as new—that budget will balance. Let our steady, experienced hand show you how.

CENTRILINE PROCESS

CENTRILINE CORPORATION

140 CEDAR STREET • NEW YORK, N. Y.

**The Centriline process is a rapid and economical method of reconditioning pipe lines of 30" and more. It consists of first cleaning the main and then applying, by centrifugal force, a dense cement mortar lining of required thickness, mechanically troweled to a smooth finish.*

Restores and Protects Pipe-Line Carrying Capacity

Making Your Air Raid Signals Heard

By E. T. H. Hutchinson
Sales Manager, The Sparks-Withington Co., Jackson, Mich.

MANY city officials and civilian coordinators planning on purchasing air raid sirens have an exaggerated expectation of the volume, range, and the penetration qualities of sirens.

Conditions in the area to be served govern the selection of the proper type of siren. A siren may be audible for miles, and on the other hand, though only a few blocks away, its sound can be less than that of a radio in the home. Sound, like light, passes through some materials and is absorbed by others. It may be deflected, creating "silence pockets." Noise levels, location, height, wind velocity, buildings, or other obstructions, the terrain, and atmospheric conditions, all affect sound coverage and audibility. These conditions are never the same in two locations, and in one location will vary from day to day. Because of these variable factors, the distance that any siren can be heard cannot be guaranteed.

A siren must project sufficient sound volume at a given point to drown out nearby noises; otherwise, additional equipment is necessary, perhaps requiring a smaller unit nearby or a larger one farther away.

Under ordinary conditions of weather and with terrain free from obstructions and high noise levels, it is estimated that our Sparton Sirens, for instance, should carry three-quarter mile to one mile per horsepower.

In dense, noisy business districts, tests have shown that liberal distribution of smaller sirens will produce more effective coverage, especially where tall buildings form a canyon. An effective combination is a siren at an intersection with units placed inside of buildings or silence pockets.

In residential or outlying business districts, closely built up and with low buildings, 1- or 2-hp sirens located one half mile to a mile apart, so that sound waves overlap, are effective. Where possible, the siren should be located in about the center of the community.

To obtain best results, sirens should be mounted at an average height of 30 to 40 feet above street or ground level. Too high mounting increases the sound range, but may cause the sound to pass by certain areas in between. Before making a permanent installation, try out various heights so that the best sound range will be found for each location.

Wherever possible, avoid mounting near surrounding obstructions such as taller buildings, trees, etc. Installation on roofs should be 9 to 12 feet above roof level, provided the roof has no parapet; a parapet would be an obstruction, so the siren should be mounted 8 to 10 feet above it.

In the general set-up of siren operation, remote control should be a part of the operating system. This control consists of a heavy-duty magnetic switch to close the power circuit to the siren motor.

A Municipal Swimming Pool in Every Neighborhood

By L. E. McCartt
City Engineer,
Covington, Ky.

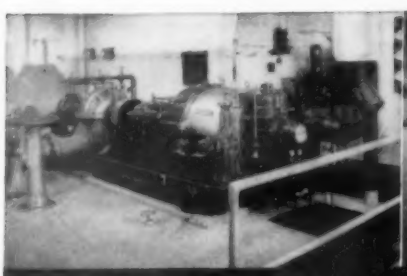
IF THERE'S a summer sport more popular than swimming among the youngsters of Covington, Ky., city officials haven't heard of it. This city has ten conveniently located swimming pools, and each has been crowded to capacity almost daily.

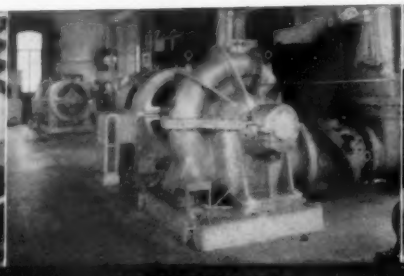
This phase of the city's recreational program had its beginning ten years ago when four concrete pools were built under private contract. These were constructed in pairs: for girls and for boys.

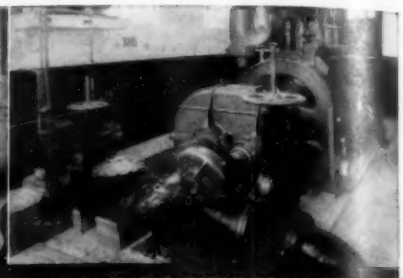
Demand for additional bathing facilities gave the municipality an excellent opportunity to cooperate with the Work Projects Administration in building new pools in 1938. A third pair of concrete pools was added that year; another set in 1940; and still another pair in 1941. Each pool is 60 x 30 feet, with water 2 to 4 feet deep. Today, each child in Covington is within easy walking distance of a pool.

Four new shelters have been erected as part of the newer pool development, one in 1940 and three in 1941. One shelter was built a number of years ago by the Park Board. All are constructed of concrete masonry. The four new structures are 50 x 25 feet in plan, and each has a 30 x 25-foot areaway, with concrete floor separating the boys' and girls' dressing rooms.

Twin pools and shelter houses built by WPA for Covington, Ky., 47th Street playground


STEAM TURBINE DRIVEN UNITS


MOTOR DRIVEN UNITS


DIESEL OR GAS ENGINE DRIVEN UNITS

WORTHINGTON EQUIPMENT
for
WATER SUPPLY

CENTRIFUGAL PUMPS

DIESEL ENGINES GAS ENGINES

MOORE STEAM TURBINES

Steam Condensers — Steam and Power Pumps

Feedwater Heaters — Steam-Jet Ejectors

Turbine Well Pumps — Sump and Drainage Pumps

Stationary Compressors — Portable Compressors

Rock Drilling Equipment — Construction Air Tools

Multi-V-Belt Drives — Water Meters

Speed Change Gears — Air Lifts

WATER PURIFICATION EQUIPMENT

Water Softeners — Pressure Filters

IC2-25

WORTHINGTON PUMP AND MACHINERY CORPORATION • HARRISON, NEW JERSEY

WORTHINGTON

Chambers of Commerce in Wartime

Varied War Activities by Local Chamber of Commerce

BIRMINGHAM, ALA.—"The winning of the war in the quickest possible time," has been the motto of the Birmingham Chamber of Commerce since Pearl Harbor. The following are some of our activities directed toward this aim.

A Tire Conservation and Transit Committee, headed by L. L. Doughton, has been appointed by President George A. Mattison, Jr., to work out problems arising from crowded traffic conditions and the anticipated future tire shortage. A survey is being made to ascertain the present and probable future number of persons using transportation facilities in the district, from which a coordinated transportation program will be worked out involving, probably, a system of staggered hours and payrolls. Contact has been made with the appropriate officials in Washington to obtain tires for vehicles distributing vital wholesale goods necessary for civilian and war needs. The Chamber has also requested the Census Bureau in Washington to raise the sugar quota of the district to conform to the present population, which is considerably larger than in 1940 when the census was made. The Salvage Committee of our organization aided the Associated Industries of Alabama in the state-wide program to salvage metal, paper, and other materials needed in the war production program.

The Chamber is cooperating with local realtors in assisting newcomers—many of them defense workers—to obtain suitable living quarters, and keeps a file of available vacant rooms and apartments in the city. A file is also kept of building sites or premises that might be used in the war effort, and elaborate surveys of the community have been sent to Washington to aid in the location of new government agencies, schools, etc. Surveys have been made, too, of the community's available skilled and unskilled labor, male and female. Protests have been sent to Congress against strikes and work stoppage in defense plants.

The Chamber contributed funds to the establishment of the local Civilian Defense Council and is cooperating with this body in every way possible. It contributed to the Red Cross, British Relief, USO, and War Bond Sale campaigns. Before the establishment of the USO here, our organization put on several social functions for the soldiers from army units located near Birmingham and gave a reception to the army officers. The Retail Division of the Chamber comprised a unit in the Army Day Parade and financed the printing of 240,000 leaflets containing a message from Governor Dix to Alabama citizens, which were dropped over the city by planes during the parade.

A campaign to raise a flag on every flag pole in the district was put on, with the motto, "Float a flag instead of a rumor."

L. E. FOSTER,
General Manager.

Facilitating the War Work of Pennsylvania's Capital City

HARRISBURG, PA.—Because Harrisburg is surrounded by permanent military and naval establishments in whose development the Chamber of Commerce has been an important contributing factor for many years, much of the organization's emphasis is on assistance to these important payroll producers. To render more effective service, an Industrial Service Committee has been created with members specially selected for their ability to aid commanding officers of these military installations in the conduct of their posts to strengthen the Chamber's position as a civilian coordinating agency. The Industrial Service Committee has been divided into small sub-committees, numbering from two to five men, whose responsibilities will be to maintain a close, intimate, and friendly contact. A successful accomplishment of the committee's aims will be obtained by cultivating good will. Informality is the keynote of the committee's operations.

Immediately upon the organization of OPM, and continuing with the cooperation of the War Production Board, the Harrisburg Chamber of Commerce has constantly stimulated sub-contracting in a large section of Central Pennsylvania. From the inception of priorities, the Chamber's Industrial Department has devoted its time almost exclusively to counseling and aiding all kinds of businesses in penetrating the maze of orders, regulations, and interpretations. No single service in the history of the Chamber has elicited more expressions of appreciation from businessmen in all lines of industry, trade, and commerce.

Expansion of both military establishments and industrial concerns in the Harrisburg area has brought steadily increasing new civilian and military personnel to the community and has created a problem in housing which the Chamber was prepared, by many years of experience, to meet. Since World War I, the Harrisburg Chamber of Commerce has continuously operated a permanent housing bureau as a part of its organization, and for the past twelve months thousands of soldiers and defense workers have found living quarters through the medium of this Chamber department. During the past several months, applicants have increased 100 per cent over a year ago, but the Chamber thus far has been able to direct newcomers to comfortable rooms, apartments, and houses.

R. W. CRIST,
Secretary.

Toledo Defense Production Association

TOLEDO, OHIO.—The outstanding accomplishment of the Toledo Chamber of Commerce so far during the war period has been the organization of the Toledo Defense Production Association.

This association, stemming from the manufacturers' service committee of the Chamber, has been instrumental in obtaining $20,000,000 worth of war contracts for Toledo plants. The contribution of needed parts for government contracts, of course, was an all-important result. Just as important was the employment of thousands of men who otherwise would have been jobless for varying periods with the cessation of automotive manufacture.

The association is still functioning. It has never paid a commission to any middleman and it has dealt directly with the government in many instances. In many others it has acted as a communal agency, obtaining a contract for one plant, and obtaining the agreement of others to manfacture the parts necessary to completion. Frequently we had minor conversions. In some cases we had the participation of ten or twelve plants, one of them making parts valued at several thousand dollars, others contributing parts of the work which did not aggregate more than a few hundred dollars.

We brought the blueprints out from Washington, called together the manufacturers, big and little, and in town-meeting fashion got the job done.

Labor, of course, participated, and the recent statement of Kenneth Cole,

WHAT PART HAS *Pipe* IN THE WAR PROGRAM?

YOU'LL probably be surprised. For example: A bed for one of Uncle Sam's soldiers takes twelve feet of pipe. A water line for just one cantonment is many miles long. A single demolition bomb starts from more than a thousand pounds of steel tube. The boilers of our newest battleships contain tons and tons of seamless boiler tubes. An army bomber may require a thousand pounds or more of mechanical tubing. Uncounted numbers of shells, tank parts, cannon mounts, machine gun rests, etc., all take an enormous quantity of pipe and tubes.

We wish you could see the ceaseless activity going on within NATIONAL Tube Company mills, the speeding up of production facilities, the improvements through tireless research. Then you would share our confidence that whatever the call for tubular products for war requirements, NATIONAL Tube will be ready to do its full part.

We are glad that in this emergency we have been able to render our country quick, vital and quantity aid. We're all in the same boat, pulling to the same end—mill, factory, distributor, and consumer.

It's a journey none of us wanted to take, but having embarked on it, we Americans shall see it through.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* — United States Steel Export Company, New York

UNITED STATES STEEL

TRENCH MORTARS stand firmly on supports of SHELBY Tubes.

TANKS of all kinds call for vast quantities of Seamless Tubing.

BATTLESHIPS are a maze of pipe and tubes, from stem to stern.

MODERN BOMBERS use SHELBY Aircraft Tubing in many parts.

AMERICA'S STANDARD WROUGHT PIPE

head of the CIO unions in Toledo, that this collective action broke the back of the big automotive lay-off locally is a fair indication of the effectiveness of the job done, particularly since it comes from a commentator who, to say the least, would be objective in considering a Chamber activity.

Nation-Wide Comment

This joint action of the city's industries occasioned wide comment throughout the nation. It began shortly after the fall of France when the manufacturers' service committee of the Chamber set about the job of getting business for Toledo's 500 industries. The first job was a data-compiling effort on the part of the Chamber staff. It was thorough and exhaustive. The Chamber put hundreds of hours in listing Toledo's man-power and machine-power, seemingly with no result and no reward. By fall 1940, we discovered that we had been building what the government wanted —the unvarnished and specific story of what Toledo was able to do. After that, the job became easier. We found governmental officials were impressed with the groundwork. There remained the around-the-table huddles and the partitioning of the work.

The Toledo Chamber also has done a splendid job of fact finding as to man power, an excellent job of Washington contact, using our own men on frequent trips. We raised a small sum to defray the cost of all this work, and found the demand for its use modest enough.

The joint defense contracting plan resulted in the formation of the association. Its headquarters were established at the Chamber, and the work was done by Chamber men.

Most of this work was done by the industrial and research departments, both having a practical knowledge of Toledo's industries. At times we broke down all departmental walls and used the entire staff.

The Defense Production Association outweighs in importance all other Chamber war activities, though the various activities in themselves represent a sizeable contribution to the war effort. In the main they consist of compiling the data, furnishing headquarters, publicity, and organization of man-power for the bond drive, scrap conservation, the training-with-industry program, industrial problems of civilian defense, and all other allied matters. The Chamber has been made the headquarters for most of the war work in Toledo and has furnished the volunteer and staff personnel.

STANLEY GROVE,
Executive Manager.

Improving Nutrition of War Workers

BRIDGEPORT, CONN.—Few can disagree with the aims of the national nutrition program as set forth by the Office of Defense Health and Welfare Services. Nor is there much doubt that the most immediate good can be derived from this program in the sphere of war industries. One survey, made in pre-war days, showed that only 20 per cent of employed workers' families had good diets; the diets of 45 per cent were fair; and those of 26 per cent poor. More recent studies disclose that workers are expected to turn out the implements of war on a diet of

Wives of war workers in Bridgeport, Conn., have as their slogan, "Pack a lunch man can work on"

pastry and coffee for breakfast (or no breakfast at all!) and sandwiches and coffee or soft drinks for lunch!

The probable rewards to be reaped from improving the obviously inadequate diet of these war workers, according to those in a position to know, include:

For the worker: Better health, joy of living, more money—money otherwise lost through absences from work because of illness, for drugs, for medical bills, etc.

For industry: A reduction in the huge bill, including $450,000,000 for colds alone, which industry now must pay because of workers' illnesses.

For the public: Uninterrupted production of bombers, tanks, guns. That means fewer sons, husbands, brothers lost on battlefields, a speedier victory, and return to normal family life.

No one, as we have said, can therefore question the desirability of improving the nutrition of all people and, in particular, of war workers. But how are these aims to be accomplished, showing tangible results in terms of improved health and faster production?

An answer to this vital question has been found in the "Bridgeport Plan." In harmony with the wishes of government officials, who realize that the success of the national nutrition program must lie, finally, with the actions of communities themselves, Bridgeport, Conn., has evolved a plan whereby women will be encouraged to pack nutritious lunches for the workers in their families. The slogan of the "Plan" led by the Civilian Defense Committee is "Pack A Lunch A Man Can work On."

Simple, isn't it? And that, we feel, is the signal advantage of this plan. Emphasis is on one meal. It is believed that, having mastered the fundamental rules of nutrition for lunches, women will automatically then apply what they have learned to other meals for the entire family. There is no confusion over micrograms, riboflavin, milligrams. There is talk, instead, of steaming stews, of thick hearty soups made of lentils and frankfurter or black beans, of the kind of puddings men like—creamy rice pudding, chockful of raisins, Brown Betty, chewy with fruit—to relieve the monotony of sandwiches, to tempt appetites to satisfy men's tastes, and (in a whisper) to provide food elements that give them that "Up and at 'Em!" feeling that is possessed only by healthy folk!

Pack such dinner-table foods in lunch boxes? Yes, it's quite possible and, in fact, packing becomes the easiest and quickest part of lunch-preparation when it is done according to the "Bridgeport Plan." Paper containers with lids are used to carry, and for service of, salads, puddings—all such foods which were heretofore never found in lunchboxes. Soups and such are served in unwaxed paper cups with or without handles. These products are particularly essential for war workers' lunches, now that glass and other containers are prohibited from many plants due to the risks of accidents or sabotage. A bewildering barrage of advice about planning and packing lunches has been telescoped into the following few simple rules for a "Five-Star Lunch":

* Plan it the day before. Buy or cook enough food for your dinner so there'll be some left over for the lunch box.
* Have all food and equipment conveniently stored in one place, so that the lunch can be packed quickly in the morning.
* Wrap all dry food in wax paper; pack puddings and salads in paper containers with lids and include paper cups for hot dishes.
* Put into the lunch box every day:

Milk. In food or drink

Bread. Whole wheat or enriched. In sandwiches, puddings, or meat loaves

Meat or cheese or eggs or fish. In sandwich fillings, salads, or hearty main dishes

Fruit. At least one, plain, or in salads or puddings

Vegetables. At least one, in sandwich fillings, salads, or hearty main dishes

* Clean and air the lunch box and vacuum bottle every night.

Though the plan is just getting under way, it already has been heralded as "pattern-setting" by government nutrition leaders. Bridgeport thus has

FLEXIBLE Suggests a New, Low Cost Method of *Keeping* Your Water Mains Clean, *All the Time!*

● Victory is ahead! But your Water Main upkeep problem will be facing you forever.

FLEXIBLE suggests a new, simplified, low-cost method (as shown in the illustration above) whereby periodic pipe-cleaning operations can be carried on with the least possible trouble or expense.

THIS FLEXIBLE METHOD will save your city the huge costs of replacing or relining your present mains and will, at the same time, assure you of full capacity, uninterrupted water supply.

IN TIME OF WAR — PREPARE FOR PEACE.

Compare these costs, based on 50-year cost of operation—6-in. pipe

1 — NEW PIPE — $3.00 per ft. + 2% per year interest on investment	$6.00 per ft.
2 — RELINING — $1.00 per ft. + 2% per year interest on investment	$2.00 per ft.
3 — OCCASIONAL CLEANING by New FLEXIBLE METHOD	40c per ft.

A letter or post card request will bring a full explanation of the money-saving advantages of this new, FLEXIBLE METHOD.

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accepted its responsibility, not only to the war workers in its midst, but to the nation as a whole by evolving a program which may be duplicated in other communities.

The Chamber of Commerce has been proud to give impetus to the campaign in every way possible. The movement was launched at a luncheon sponsored by the Chamber and addressed by Dr. Ira V. Hiscock, Professor of Public Health at Yale University, who gave his endorsement to the plan. We hope that the wives of the 75,000 workers now in our industrial plants may become the vanguard of a vast kitchen brigade teaching better health.

ROBERT A. CROSBY,
Executive Secretary, Bridgeport Chamber of Commerce.

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Emergency Activities

NEW ORLEANS, LA.—In a recent circular for distribution among its membership, the New Orleans Association of Commerce listed some of its wartime activities as follows:

1. Operating an advisory and clearance service on all phases of the war and defense program which involve business and the community.
2. Maintaining close working relationship with Army and Navy authorities in this area and carrying out the assignments and responsibilities designated by these agencies.
3. Giving specialized assistance and cooperation to the New Orleans area federal offices of Contract Distribution, Priorities and Allocations and Labor Training and Supply; serving as a coordinating agency between these offices and our commercial and industrial establishments in the interest of full and intensive production.
4. Cooperating to provide adequate housing for war and defense workers; engaging in special efforts to expand the housing facilities of the New Orleans area.
5. Actively participating, through its facilities and the services of its staff members, with the New Orleans office of Civilian Defense in formulating and carrying out a comprehensive program to protect lives and properties from air raids.
6. Rendering a quick legislative reporting service on pending federal emergency measures, and maintaining a current system of checks and records on government emergency rules and regulations, new establishments, and offices, appointees, etc.
7. Cooperating with the organized effort in New Orleans to increase the sale of Defense Bonds and Stamps.
8. Working to reduce non-essential government expenditures, so that every possible dollar of available funds may be applied to the advancement of the war effort.
9. Conducting surveys and inventories of essential war production and commercial facilities in the New Orleans area, and furnishing reports to federal officials and agencies.

P. J. RINDERLE,
Publicity Secretary.

Administration in a Democracy

THE demands of a world in flames show us more clearly than ever that the solution of many of our problems depends in large measure upon skill in administrative management. . . . Even without any emergency, it is more and more clearly recognized that public administration is of incalculable importance as an instrument for dealing with social and political matters. . . .

There is no necessary conflict between high ideals of democracy and high administrative capacity. On the contrary, they are rooted in the same fertile soil of reason and experience. Public adminstration, if wisely conceived and executed, will ultimately increase not only the driving force of the whole community, but also expand the range of free choices for the personality. Good administration proceeds upon a very simple principle—that of providing an easier way of doing what otherwise is more difficult to do, or cannot be done at all.

—From a 1942 report of the Spelman Fund of New York.

City Manager Appointments

Richard Dean has been appointed acting manager of Deland, Fla., to succeed William J. Deegan, Jr., who has been appointed assistant director of Industrial and Material Resources, Florida State Defense Council.

R. J. Greenberg replaced Lloyd Waterstraut as city manager of Sturgis, Mich., on May 6.

John Coleman Harris has replaced Harry N. Lowe as town manager of Tappahannock, Va.

John P. Hoffman, Jr., city clerk of Two Rivers, Wisc., for the past 17 years, has been appointed city manager of that city following the resignation of Harry W. Knight now with the War Production Board.

Lloyd F. Kniffin, evaluation engineer, N. Y. Department of Public Service, Buffalo, has been appointed borough manager of Milton, Penn., effective May 18.

D. O. McDougall is city manager of Ford Meade, Fla., replacing H. M. Horton, who has been acting manager for the past several months.

Donald M. Oakes has succeeded A. M. Hopperstead as city manager of Alpena, Mich.

Arthur S. Owens, former assistant state supervisor of education in the trades and industrial department, has been appointed city manager of Portsmouth, Va.

Felix L. Streed, city manager of Kenilworth, Ill., from 1920 to 1936, has been appointed village manager of Grosse Pointe Park, Mich.

Charles S. Thrasher, former city clerk, has been appointed acting city manager of Daytona Beach, Fla., following the resignation of F. M. Wilkerson to become Chief Economic and Statistical Analyst, Florida Power and Light Company.

Clair V. Ward, former mayor, has been appointed city manager of Alhambra, Calif., effective June 1.

Burton L. Winslow, manager of Stoughton, Mass., since March 1922, has accepted the position as first manager of Bennington, Vt.

E. L. Wilson has been appointed acting manager of Excelsior Springs, Mo., to replace Robert Lightstone who is joining the Naval Reserve.

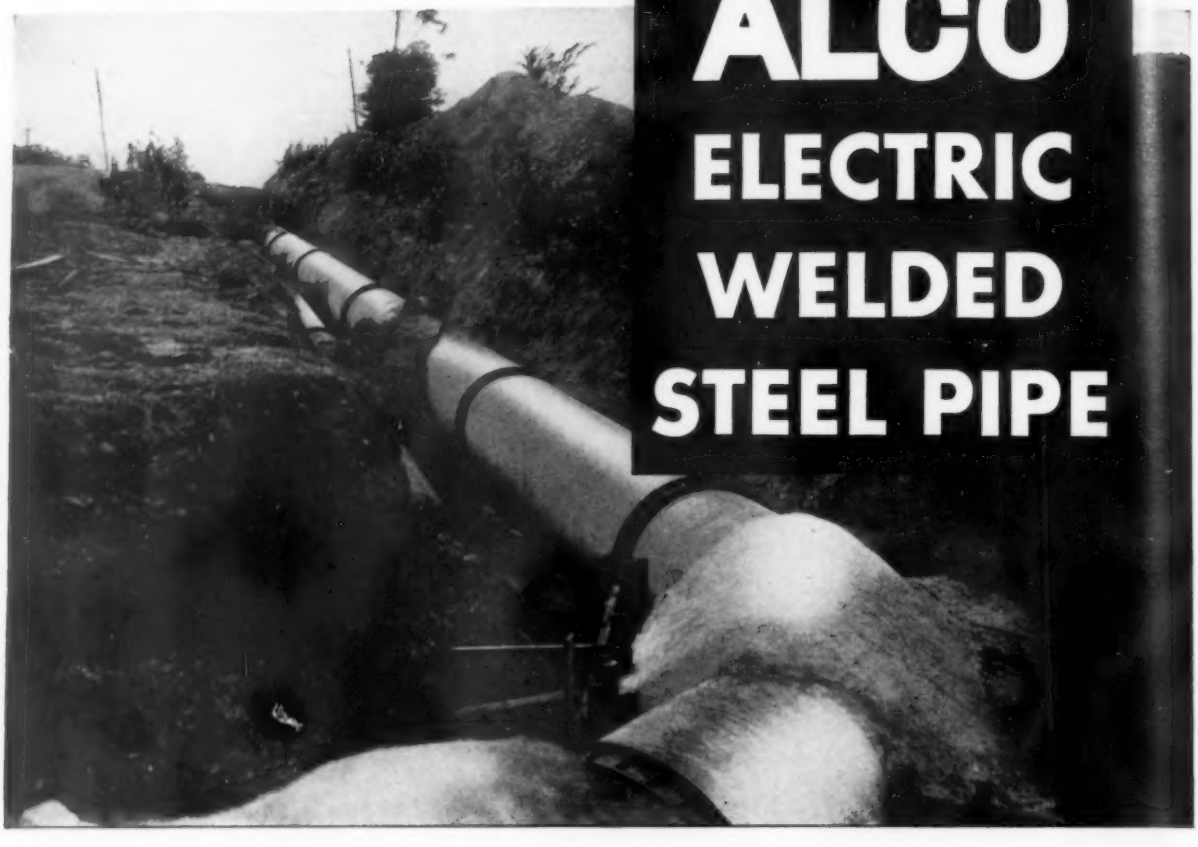
CLARENCE E. RIDLEY,
Executive Director International City Managers' Association

Municipal Bond Market

Among recent sales of new issues as reported by *The Bond Buyer* are:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$265,000	Norfolk Co., Mass., Brookline Municipal Court House	.75	2.33 Avg.	.586
150,000	New Kensington, Pa., Funding	1.25	1-5 Ser.	1.13
150,000	Kent, Ohio, Sewer System Improvement	1.25	5.85 Avg.	1.21
125,000	Medford, Mass., Relief	1.25	5.33 Avg.	1.22
100,000	Steubenville, Ohio, Paving	1.25	5.85 Avg.	1.25
150,000	Poughkeepsie, N. Y., Refunding	1.50	9.85 Avg.	1.28
104,000	Toledo, Ohio, Street Improvement	1.5	3.16 Avg.	1.36
300,000	New Bedford, Mass., Municipal Relief	1.5	1-10 Ser.	1.37
179,000	Oklahoma City, Okla., Aviation Airport	1.5	8.85 Avg.	1.46
148,000	Johnstown, Pa., Refunding	1.75	5.33 Avg.	1.70
495,000	Oklahoma Co., Okla., Road	2.5	3-11 Ser.	1.76
150,000	Milford, Del., School	2.5	13.25 O.-A.	1.96
210,000	Hackensack, N. J., General Refunding	2.10	9.85 Avg.	2.08
140,000	Albuquerque, N. Mex., Storm Sewer	2.25	16.50 Avg.	2.19
250,000	El Paso, Texas, Sewer and Sewage Disposal	2.5	13.16 Avg.	2.246
6,000,000	Indianapolis, Ind., Gas Utility Revenue	3.125	7-17.75 O.-A.	3.058
250,000	Pennsauken Tp., N. J., Refunding	3.5	14.5 Avg.	3.5

ALCO ELECTRIC WELDED STEEL PIPE



Alco electric welded steel pipe fabricated in accordance with the latest improved methods is highly resistant to sudden shock and rupture. Alco pipe is low in initial cost and designed for long life.

BUY ALCO AND AVOID EXPENSIVE REPAIRS

AMERICAN LOCOMOTIVE COMPANY
ALCO PRODUCTS DIVISION
30 CHURCH ST., NEW YORK, N. Y. DUNKIRK, N. Y.

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of "The Master Plan"

Residential Zoning District—Cemetery—Variance

CALIFORNIA.—*Heath v. Lesem*, Superior Court, San Diego County, April 15, 1942. Not reported.

The petitioners are seeking to obtain a permit of burial in a residential zoning district in the County of San Diego. The law of the State of California requires that bodies should be interred in cemeteries, the burial permit being required to specify the name of the cemetery where the remains are to be placed. The petitioners sought to bury the body in question on land that was not a cemetery, and a permit was refused them. They then asked for a variance of the zoning ordinance allowing them to establish a "one man" cemetery, but were denied this variance.

The court holds that the law requiring bodies to be placed in cemeteries is valid; that the exclusion of cemeteries from the residenital district in question is reasonable, and that the refusal to grant a variance in this case cannot be said to be an unreasonable exercise of the discretion lodged in the officials exercising it; nor has the court a right to review the action of these authorities in the use of this discretion, but only for illegality in the proceedings before them.

The ordinance provides for the establishment of cemeteries in other districts; otherwise an entirely different question would be presented for decision.

Zoning Ordinance—Variance—Self-Created Hardship

NEW YORK.—*Thomas v. Board of Standards and Appeals*, Supreme Court, Appellate Division, February 24, 1942, reported 33 N. Y. S. (2d) 219.

This is a proceeding to obtain a variance of the New York City Building Zone Resolution on the ground that the applicant has suffered an unnecessary hardship. To obtain a variance for this reason, it must be unique, to which others in the same zone were not similarly subject.

But assuming that there has been such a hardship in this case, it is of the owner's own creation. The present improvement, which alone tends to make the land unproductive and unprofitable, was erected by the owner or its predecessor in title with a view to laying the basis for a subsequent plea of unnecessary hardship, so as to obtain the variance. The present owner, if it was not a party to this plan, purchased the premises with full knowledge of it, and is suffering from a necessary hardship for which it alone is responsible. In no event may such a self-created hardship be made the basis for a variance for unnecessary hardship under Section 21 of the New York City Zoning Resolution.

Residential Zoning District—Temporary Business

NEW YORK.—*Peacock Point Corporation v. Meudon Land and Improvement Corporation*, Supreme Court, September 22, 1941, reported 33 N. Y. S. (2d) 96.

Defendant Meudon Corporation is engaged in a dredging operation, the purpose of which is to allow small boats access to its seaside property. The soil and sand are to be sold to the dredging company in payment for their work. The time of the operation is limited to three months.

The property in question is in a residence district in which the conduct of a business is forbidden. Neighboring property owners object, claiming that the dredging and sale of material is contrary to the zoning ordinances in this district. The court holds that the ordinance must be interpreted to forbid permanent, not temporary, business operations, and that therefore the present operation, limited in duration to three months, is not forbidden in this district by the ordinance.

Zoning Variance—Record of Board of Appeals

NEW YORK.—*Hopkins v. Board of Appeals*, Supreme Court, March 7, 1942, reported 33 N. Y. S. (2d) 396.

The real estate involved in this case consists of a parcel of land in a residential district, in the City of Rochester, upon which there are two single-family dwellings about sixty years old. The applicant asks for a variance allowing him to erect a gasoline filling station there, on the ground of practical difficulty and unnecessary hardship, by reason of the changed condition of the neighborhood, the fact that the property is now surrounded by business, and that a gasoline station there would be of great public utility.

It is undoubted law that to obtain the variance claimed, the situation of the applicant must be exceptional or else the proper remedy is an amendment of the ordinance and not a variance. It is claimed and denied that there are only these two houses affected by the hardship in question.

The mere fact that the premises sought to be exempted from the zoning ordinance could be used more profitably for a gasoline filling station would not in itself justify granting the exemption, but where there was no other use to which the premises could be put without doing violence to ordinary business principles, an exemption from the zoning ordinance may properly be granted.

The zoning board of appeals granted the exemption, and this is a proceeding to annul their determination. The record of the board as certified to the court failed to show that real estate experts were called or other evidence produced and did not disclose any facts which may have been found by the members of the board on personal inspection of the premises. This court, in review, cannot accept arguments as evidence and cannot be apprised of what facts the board found unless they are enumerated in its report.

There being no finding of fact and no evidence certified to the court by the board, the court cannot proceed to hear new evidence why a variance should be granted (under the New York State statute authorizing a court so to do in a proper case) without substituting its own discretion for that of the board, which it cannot lawfully do. The court therefore must annul the determination of the board and remit the proceedings to the board with instructions to make findings of fact in support of whatever determination the board may reach on the evidence or on a personal examination of the premises, with leave to the parties to introduce further evidence upon another hearing.

Junk Yard

OHIO.—*City of Miamisburg v. Clayman*, Court of Appeals, May 20, 1941, reported in 37 N. E. (2d) 94.

Section 7 of an ordinance of the City of Miamisburg provides that no building shall be erected or used in the city for . . . junk storage. The defendant stored paper, cardboard and rags on his premises, and was charged with the violation of the ordinance. Without giving reasons, the court sustains the ordinance as reasonable.

• • • —

New Officers of ASPO and NAHO

At the annual meeting of the American Society of Planning Officials in Indianapolis last month, Philip H. Elwood, head of the Department of Landscape Architecture, Iowa State College, was elected President of the Society; and Cleveland Rodgers, member of the City Planning Commission of New York, Vice-President.

The National Association of Housing Officials, at its annual meeting in Baltimore, elected as its President Dr. C. E. A. Winslow, of the Yale School of Medicine and Chairman of the New Haven Housing Authority; and as Vice-Presidents, John Ihlder, Executive Officer, Alley Dwelling Authority for the District of Columbia, and Jesse Epstein, Executive Director, Housing Authority of the City of Seattle.

Walter H. Blucher and Coleman Woodbury, respectively, continue as the Executive Directors of the two organizations, with headquarters at 1313 East 60th Street, Chicago, Ill.

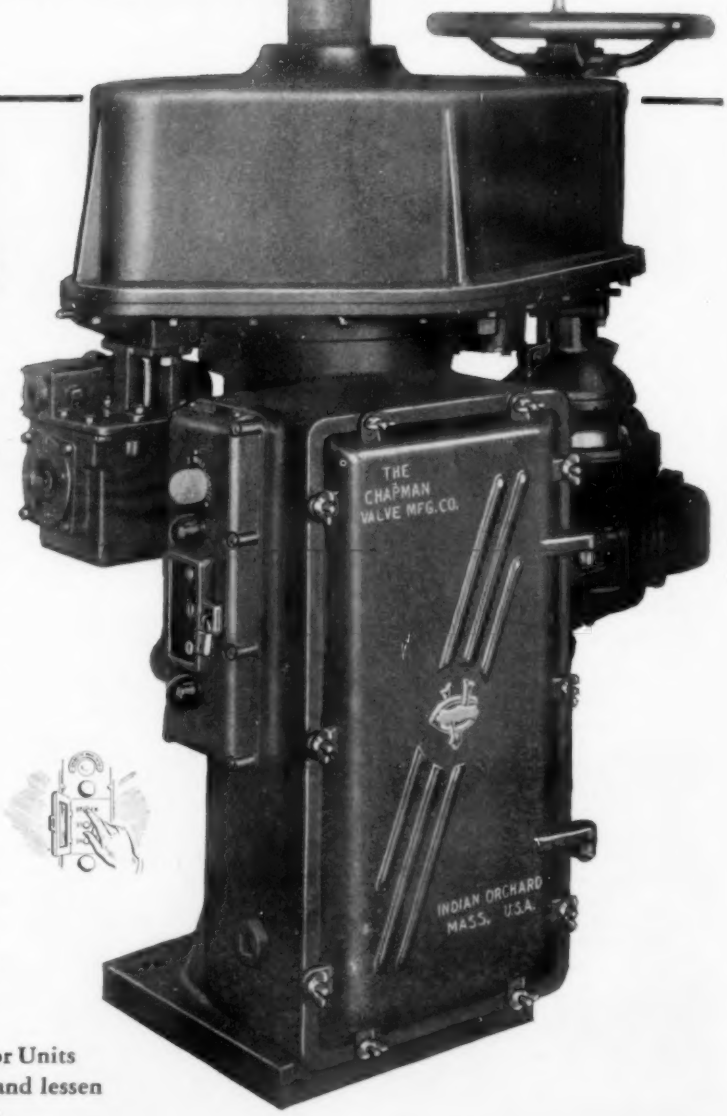
LOOK NO HANDS!

Chapman Motor Units

Save Time and Labor in Operating Valves, Gates, and Floorstands

The light touch of one finger does the heavy work of scores of hands . . . when valves, gates and stands are electrified with Chapman Motor Units. And then multiple operation becomes positive, simultaneous, and perfectly co-ordinated throughout the most widespread system. All with the smallest fraction of the labor required for individual manual operation.

Chapman Motor Units can be mounted in any position . . . on new or existing equipment . . . indoors, outdoors or under water. They seat all valves without jamming, and without danger of damage from obstruction while operating. And, as final protection, provision is made for instantly shifting the units to hand operation in case of power failure. Find out in detail what Chapman Motor Units can do to increase your operating efficiency, and lessen many problems of labor procurement. Write.



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Buy War Bonds and Stamps. Help win the war for FREEDOM.

Municipal Law Notes and Decisions

Prepared by National Institute of Municipal Law Officers, Washington, D. C.
Charles S. Rhyne, Executive Director

Automobiles — Stop Signs — Prosecution for Driving Through

City traffic ordinance requiring all motorists to stop at stop signs before entering intersection is valid and enforceable even though there is no traffic in or near or within sight of intersection at time of violation of said ordinance. *City of Des Moines* v. *Pugh*, 2 N. W. (2d) 754 (Iowa March 17, 1942).

Bonds—Issuance of Both Tax and Revenue Bonds for Waterworks and Sewer System

City may combine into a single issue of each for both systems the tax bonds and revenue bonds authorized by the electorate for a waterworks and for a sewerage system. *Texsan Service Co.* v. *City of Nixon*, 158 S. W. (2d) 88 (Tex. Civ. App. Nov. 26, 1941. Reh. Den. Jan. 21, 1942).

Civil Liberties—Freedom of Speech—Use of Offensive Words in Public Places

Freedom of speech guaranteed by the Constitution was not denied to a member of Jehovah's Witnesses convicted under a state statute for resorting to the prohibited use of offensive words in a public place addressed to the marshall of the City of Rochester. *Chaplinsky* v. *State of New Hampshire*, 62 Sup. Ct. 766 (U. S. Sup. Ct. March 9, 1942).

Civil Service—Patrolman—Dismissal for Attempted Fraud in Examination

Dismissal of patrolman from police force of the City of New York upon summary revocation of his certification by the Civil Service Commissioners when patrolman admitted marking his examination papers with a code symbol for the purpose of obtaining a higher grade sustained even though there was no evidence patrolman had actually benefited by the attempted fraud. *Marinick* v. *Valentine*, 33 N. Y. S. (2d) 486 (N. Y. Sup. Ct. App. Div. March 13, 1942). *Humenn* v. *Valentine*, 33 N. Y. S. (2d) 490 (N. Y. Sup. Ct. App. Div. March 13, 1942).

Disability Benefits—City Employee Injured After Hours Not Entitled To

Per diem city employee injured while playing baseball at 7 p. m. not entitled to disability benefits since he was not injured "while in the employ of the City." *Grant* v. *City of Philadelphia*, 24 A. (2d) 650 (Pa. Super. Ct. Feb. 28, 1942).

Home Rule—Firemen's Pension Statute

A statute providing pensions for superannuated and disabled firemen is a matter of state-wide concern applicable to home rule cities. The provision exempting cities of first class who have adopted charters is invalid as special legislation since some cities in this class have not adopted charters. *Axberg* v. *City of Lincoln*, 2 N. W. (2d) 613 (Nebr. Feb. 20, 1942).

Officers—Liability for Diversion of City Funds

Petition alleging that certain city officials wilfully and unlawfully expended city taxes for purposes other than for which they were levied and collected states a cause of action against the City Manager and its Treasurer, who are charged with the management of the city funds, but not against its Auditor, whose duties are merely clerical. *City of Newport* v. *Rawlings*, 158 S. W. (2d) 12 (Ky. Nov. 7, 1941. Reh. Den. Feb. 13, 1942).

Parkway—Pedestrian Injured by Stepping into Depression

Pedestrian injured by stepping into a depression in a public parkway of a municipality held not entitled to damages from the city in the absence of city's statutory duty to maintain same in a reasonable safe condition for public use. *City of Miami Beach* v. *Quinn*, 5 So. (2d) 593 (Fla. Jan. 16, 1942).

Pensions—Widow Marrying Fireman after Retirement

Widow of fireman of the City of Springfield who married him after his retirement on a pension and their child by such marriage are not entitled to a pension. *Boehne* v. *Board of Trustees of Firemen's Pension Fund of Springfield*, 40 N. E. (2d) 94 (Ill. App. Feb. 24, 1942).

Pool Rooms—Club Room Operation Prohibited

Operation of a pool room restricted to those who pay a yearly nominal due plus invited "donations" for the privilege of using the pool tables prohibited under ordinance of City of Laurel as a public pool room. *Recreation Club, Inc.* v. *Miller*, 5 So. (2d) 678 (Miss. Jan. 26, 1942).

Public Utilities—Forfeiture of "Perpetual" Franchise by Non-User

A street railway company forfeited its "perpetual" franchise to use a certain street of the City of Boston by discontinuing such use. Such a franchise is merely a license to occupy certain parts of the street revocable at the pleasure of the legislature so a statute declaring the franchise forfeited for non-user is valid. *Boston Elevated Ry. Co.* v. *Commonwealth of Massachusetts*, 39 N. E. (2d) 87 (Mass. Jan. 8, 1942).

Sewers—Fraud in Acceptance Of by City

Fraudulent failure of a local governing board to comply with its statutory duty to file a certificate of costs and completion or non-completion of a sewer within 30 days after the final acceptance of a sewer construction project which was allegedly improperly performed vests jurisdiction in a federal court of equity to grant relief from fraud, if proved. *The Maccabees* v. *City of North Chicago*, 125 F. (2d) 330 (C. C. A. 7th, Jan. 13, 1942, Reh. Den. Feb. 13, 1942).

Sidewalks—Break in Causing Pedestrian to Fall

Pedestrian recovered damages against City for personal injuries sustained when her heel caught in a break in a sidewalk causing her to fall where break therein had existed for over a year. *Nairn* v. *City of Columbus*, 39 N. E. (2d) 200 (Ohio App. May 17, 1941).

Taxes—Claims for Refund Filed Too Late—Estoppel

Claim for refund of taxes based on alleged overassessment is barred when not filed within the six months period after payment prescribed by city charter. City is not estopped to rely on this charter provision by facts showing that other claims had been paid though filed more than six months after payment or by claim that city attorney advised plaintiff's counsel that it was unnecessary to file claims within six months. *First Trust & Savings Bank of Pasadena* v. *City of Pasadena*, 123 P. (2d) 60 (Cal. App. March 9, 1942).

Solicitors—Ordinance Declaring Uninvited Soliciting on Private Premises a Nuisance

City ordinance declaring uninvited soliciting on private premises a nuisance and punishable as a misdemeanor unconstitutional as an invalid exercise of the police power as imposing an unreasonable restraint upon a magazine solicitor without due process of law. *City of Osceola* v. *Blair*, 2 N. W. (2d) 85 (Iowa Feb. 10, 1942).

Street Photographers—Ordinance Prohibiting Commercial Advertising upon Street

City ordinance prohibiting the distribution of commercial advertising matter upon the public streets when applied to street photographers to prevent the handing out of order blanks after pictures were taken sustained as a valid exercise of the police power. *Pittsford* v. *City of Los Angeles*, 122 P. (2d) 535 (Cal. App. Feb. 17, 1942).

Street Widening—Special Assessment For

Actions for declaratory judgment to set aside a special assessment levied for a street widening project dismissed where statutes providing exclusive method of judicial review to determine validity of assessments were constitutional. *Richfield Oil Corp.* v. *City of Syracuse*, 39 N. E. (2d) 219 (N. Y. Ct. App. Jan. 15, 1942).

Sidewalks—Hole In—Liability of City, Owner and Lessee of Abutting Property to Pedestrian for Fall

Pedestrian fell into a hole in the sidewalk which had been covered with newspapers by children playing there. *Held*, tenant primarily liable for defective condition, city, secondarily liable and owner of abutting property assumed liability for any negligence upon undertaking lessee's duty to repair. *Ford* v. *City of Philadelphia*, 24 A. (2d) 746 (Pa. Super Ct. March 2, 1942).

Sidewalks—Ice On—Abutting Property Owner's Liability—City's Duty

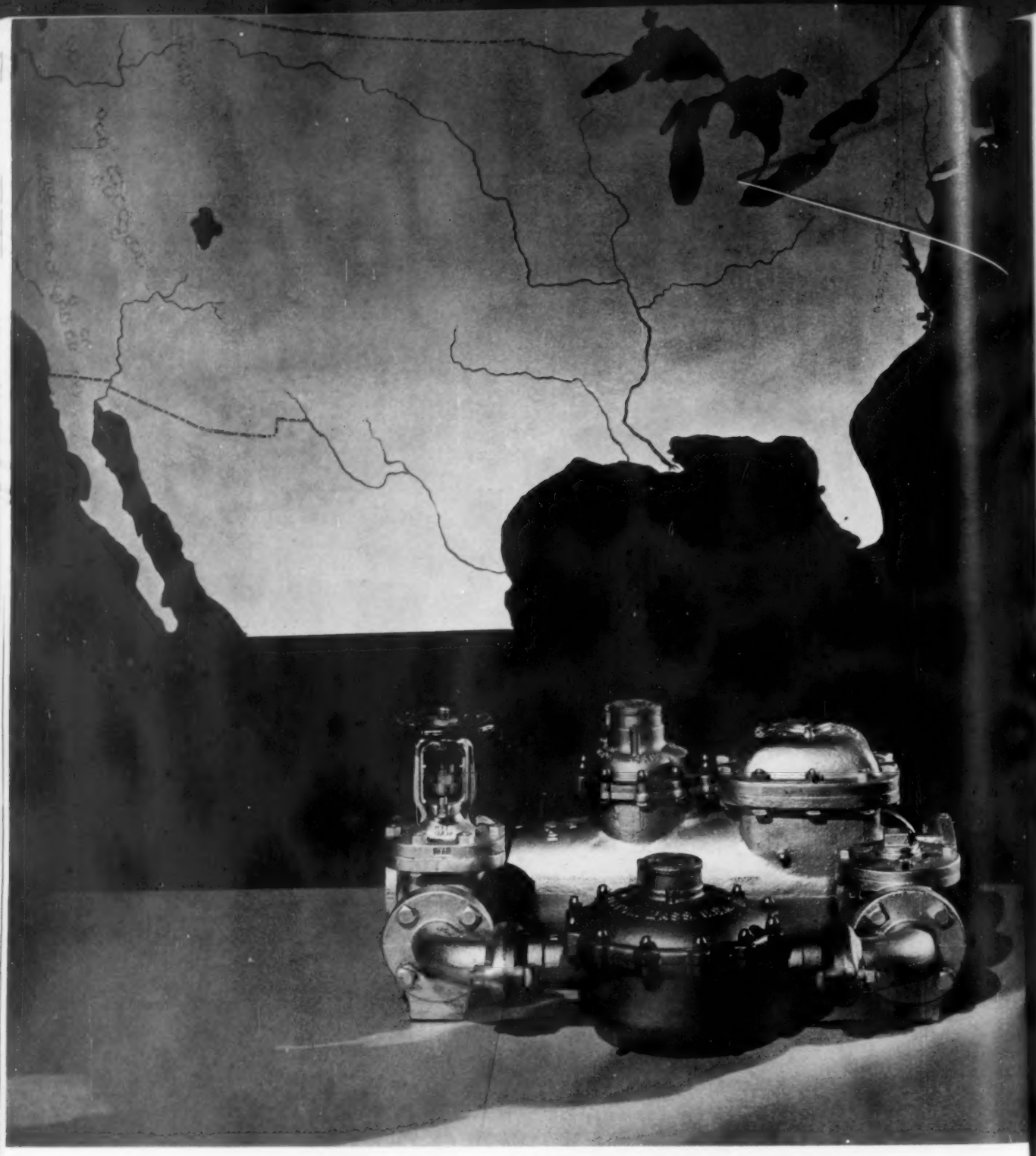
An abutting property owner is not liable to a pedestrian who fell as a result of ice on a Kansas City sidewalk in the absence of a showing of willful neglect on the part of such owner. The primary duty of the city to keep its sidewalks safe cannot be shifted to private property owners by ordinance. Here the city settled the claim against it and the plaintiff proceeded against the abutting property owner. *Riley* v. *Woolf Bros., Inc.*, 159 S. W. (2d) 324 (Jan. 26, 1942, Reh. Den. Feb. 16, 1942).

Swimming Pool—Denial of Right of Use to Colored Man

Right to use municipal swimming pool denied colored man generally known throughout the city to be a man of immoral character sustained. *Kern* v. *City of Newton*, 122 P. (2d) 728 (Kan. March 7, 1942).

Voting Machines—Use of in Louisiana Legal

Act authorizing use of mechanical voting machines in State of Louisiana and requiring use thereof in all elections of City of New Orleans sustained as constitutional. *Peck* v. *City of New Orleans*, 5 So. (2d) 508 (La. Dec. 1, 1941, Reh. Den. Dec. 22, 1941).



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Conventions—When and Where

June 15-17.—Ely, Minn.
League of Minnesota Municipalities. Exec. Sec., C. C. Ludwig, University of Minnesota, Minneapolis, Minn.

June 18-19.—Minneapolis, Minn.
Central States Sewage Works Assocation. Fifteenth annual convention. (Nicollet Hotel.) Sec., E. J. Beatty, Sewage Treatment Plant, Menasha, Wisc.

June 18-20.—Detroit, Mich.
Special Libraries Association. (Statler Hotel.) Exec. Sec., Mrs. Kathleen B. Stebbins, 31 E. 10th St., New York City.

June 21-25.—Chicago, Ill.
American Water Works Association. (Stevens Hotel.) Sec., Harry E. Jordan, 22 E. 40th St., New York City.

June 22-25.—Buffalo, N. Y.
Municipal Finance Officers' Association of the United States and Canada. Exec. Sec., Carl H. Chatters, 1313 E. 60th St., Chicago, Ill.

June 22-26.—Erie, Pa.
Pennsylvania State Association of Boroughs. Pres., Thomas F. Chrostwaite, Hanover, Pa.

June 25-26.—Detroit, Mich.
American Institute of Architects. (Hotel Statler.) Exec. Sec., E. C. Kemper, 1741 New York Ave., Washington, D. C.

***June 25-26.—Regina, Saskatchewan.**
Saskatchewan Urban Municipalities Association. (City Hall.) Sec.-Treas., W. E. Hodge, 503 Scott Block, Moose-Jaw, Sask., Canada.

June 25-27.—Reading, Pa.
Eastern Association of Fire Chiefs. (Berkshire Hotel.) Sec., Charles E. Clark, Box 217, Wayne, Pa.

June 28-30.—San Valley, Idaho.
Idaho Municipal Officers' Association. Sec., George C. Huebener, Emmett, Idaho.

June 28—July 2.—Denver, Colo.
National Education Association of the United States. Exec. Sec., Willard E. Givens, 1201 16th St., N. W., Washington, D. C.

July 21-25.—Wilkes-Barre, Pa.
Pennsylvania Chiefs of Police Association. (Hotel Stearling.) Sec., F. B., Titus, Lansdowne, Pa.

***July 22-25.—Minneapolis, Minn.**
American Society of Civil Engineers. (Campus of the University of Minnesota.) Sec., George T. Seabury, 33 West 39th St., New York City.

July 26-August 1.—Missoula, Mont.
Rocky Mountain Institute for Commercial Organization Executives. (Montana State University.) Dean, Robert C. Line, School of Business Administration, Montana State University, Missoula, Mont.

July 29-31.—Poughkeepsie, N. Y.
New York State Association of Chiefs of Police. (Nelson House.) Sec.-Treas., R. W. Morris, P. O. Box 346, Geneva, N. Y.

August 2-7—San Bernardino, Calif.
Western Institute of Commercial and Trade Executives. (Arrowhead Springs Hotel.) Mgr., William E. Hammond, 333 Pine St., San Francisco, Calif.

August 16-22.—Evanston, Ill.
National Institute for Commercial and Trade Organization Executives. (Northwestern University.) Sec.-Treas., Clarence R. Miles, 832 First National Bank Bldg., Chicago, Ill.

August 17-19.—Des Moines, Ia.
League of Iowa Municipalities. (Savery Hotel.) Sec.-Treas., Frank G. Pierce, Marshalltown, Iowa.

***August 23-28.—Chicago, Ill.**
National Shade Tree Conference. (Stevens Hotel.) Sec.-Treas., L. C. Chadwick, Ohio State University, Columbus, Ohio.

August 25-28—Harrisburg, Pa.
Pennsylvania Sewage Works Association. (Penn-Harris Hotel.) Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

***August 27.—Harrisburg, Pa.**
Pennsylvania Water Works Operators' Association. (Penn-Harris Hotel.) Sec.-Treas., I. M. Glace, 22 S. 22d St., Harrisburg, Pa.

***September 3-5.—Cedar City, Utah.**
State Municipal League of Utah. (Escalante Hotel.) Sec., Tom McCoy, Public Safety Building, Salt Lake City, Utah.

September 7-9.—Princeton, N. J.
Governmental Research Association. Sec.-Treas., Lent D. Upson, 5135 Cass Ave., Detroit, Mich.

***September 9-11.—Chicago, Ill.**
American Transit Association. (Stevens Hotel.) Sec., Guy C. Hecker, 292 Madison Ave., New York City.

September 9-11.—Traverse City, Mich.
American Water Works Association—Michigan Section. (Park Place Hotel.) Sec., M. N. Gerardy, Water Board Bldg., Detroit, Mich.

September 9-12.—Denver, Colo.
National Association of Assessing Officers. Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

September 15-18.—Poland Spring, Maine.
New England Water Works Association. (Poland Spring House.) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

September 18.—Pittsburgh, Pa.
American Water Works Association—Western Pennsylvania Section. (Roosevelt Hotel.) Sec., E. P. Johnson, 418 Flannery Bldg., Pittsburgh, Pa.

***September 17-18.—Cheyenne, Wyo.**
American Water Works Association—Rocky Mountain Section. (Frontier Hotel.) Sec., B. V. Howe, 201 Argonaut Hotel, State Office Bldg., Denver, Colo.

***September 21-22.—St. Louis, Mo.**
Illuminating Engineering Society. Wartim Lighting Conference. Jefferson Hotel.) Gen. Sec., A. D. Cameron, 51 Madison Ave., New York City.

***September 21-25.—New York City.**
International Association of Chiefs of Police. Wartime Conference. (Hotel Pennsylvania.) Exec. Sec., Edward J. Kelly, 918 F. Street N. W., Washington, D. C.

September 21-24.—Los Angeles, Calif.
League of California Cities. (Biltmore Hotel.) Sec., Richard Graves, 2121 Allston Way, Berkeley, Calif.

September 25.—New London, Conn.
New England Sewage Works Association. Fall meeting. (Ocean Beach Pavillion.) Sec.-Treas., LeRoy W. Van Kleeck, State Dept. of Health, Hartford, Conn.

***September 25-25.—Mammoth Cave, Ky.**
Kentucky Municipal League. (Mammoth Cave Hotel.) Exec. Sec., Carl B. Wachs, University of Kentucky, Lexington, Ky.

September 24-26.—St. Paul, Minn.
American Water Works Association—Minnesota Section. (Lowry Hotel.) Sec.-Treas., Ronald M. Finch, Wallace & Tiernan Co., Inc., 414 Flour Exchange, Minneapolis, Minn.

***September 28-October 2.—Cincinnati, Ohio.**
National Recreation Association. (Netherland Plaza Hotel.) Sec., Thomas E. Rivers, 315 Fourth Avenue, New York City.

October 2-4.—Chicago, Ill.
Institute of Traffic Engineers. (Hotel Stevens.) Sec.-Treas., W. Graham Cole, 60 John St., New York City.

October 3-8—Atlantic City, N. J.
International Municipal Signal Association, Inc. (Hotel Traymore.) Sec., Irvin Shulsinger, 8 E. 41st St., New York City.

October 5-8.—Cleveland, Ohio.
National Association of Public School Business Officials (Hotel Statler.) Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.

October 5-9.—Chicago, Ill.
National Safety Congress & Exposition. (Stevens Hotel.) M'ng Dir., W. H. Cameron, 20 North Wacker Drive, Chicago, Ill.

October 7-9.—Philadelphia, Pa.
American Water Works Association—Four States Section. (Benjamin Franklin Hotel.) Sec., Lloyd Nelson, U. S. Pipe & Foundry Co., Broad and Chestnut Streets, Philadelphia, Pa.

October 7-9.—Springfield, Ill.
Illinois Municipal League. (Leland Hotel.) Exec. Dir., A. D. McLarty, 537 So. 4th St., Springfield, Ill.

October 11-13.—Richmond, Va.
League of Virginia Municipalities. (John Marshall Hotel.) Exec. Sec., Harold I. Baumes, 902 Travelers Bldg., Richmond, Va.

October 11-13.—French Lick, Ind.
International City Managers' Association. (French Lick Springs Hotel.) Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

October 12.—Clarksburg, W. Va.
League of West Virginia Municipalities. Exec. Sec., Hume K. Nowlan, Hinton, W. Va.

October 12-14.—Rochester, N. Y.
American Society of Mechanical Engineers. (Sagamore Hotel.) Nat'l Sec., D. E. Davies, 29 W. 39th St., New York City.

October 12-13.—Little Rock, Ark.
American Water Works Association—Southwest Section. Sec., Lewis A. Quigley, 3320 W. Berry St., Fort Worth, Texas.

***October 13-15.—Evanston, Ill.**
Illinois Association of Park Districts. (Georgian Hotel.) Exec. Dir., A. D. McLarty, 500 E. Capitol Ave., Springfield, Ill.

October 18-21.—Cleveland, Ohio.
American Public Works Association. (Hotel Statler.) Exec. Dir., Norman Hebden, 1313 E. 60th St., Chicago, Ill.

October 19-21.—Paducah, Ky.
American Water Works Association—Kentucky-Tennessee Section. (Irving Cobb Hotel.) Sec.-Treas., Howard D. Schmidt, 420 6th Ave., North, Nashville, Tenn.

October 19-22.—Cincinnati, Ohio.
National Tax Association. (Netherland Plaza Hotel.) Sec., Raymond E. Manning, Library of Congress, Washington, D. C.

October 21-25.—Chicago, Ill.
The American Municipal Association. Exec. Dir., Earl D. Mallery, 1313 E. 60th Street, Chicago, Ill.

October 22-24.—St. Louis, Mo.
American Water Works Association—Missouri Valley Section. (Coronado Hotel.) Sec., Earle L. Waterman, Prof. Sanitary Engineering, University of Iowa, Iowa City, Iowa.

***October 22-24.—Cleveland, Ohio.**
Federation of Sewage Works Associations. (Hotel Statler.) Exec. Sec., W. H. Wisely, Box 18, Urbana, Ill.

***October 26-30.—St. Louis, Mo.**
American Public Health Association. Exec. Sec., Dr. Reginald M. Atwater, 50 W. 50th St., New York City.

***November 2-4.—Durham, N. C.**
North Carolina Sewage Works Association. (Washington Duke Hotel.) Sec.-Treas., Box 1170, Durham, N. C.

***October 28-31.—Oakland, Calif.**
Water ane Sewage Manufacturers Assn., Inc. (Hotel Oakland.) J. R. Barker, Chm., Exhibit Committee, Calif. Sect., 320 Market St., San Francisco, Calif.

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* First appearance of notice on this page.

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Ohio Water Supply and Purification

Public Water Supplies and Control of Stream Pollution in Ohio.—By F. H. Waring, Chief Engineer, Ohio Department of Health. Circular No. 41. Engineering Experiment Station, Ohio State University, Columbus, Ohio. 1942. *24 pp.*

A historical survey of the growth of water purification and waste disposal in Ohio cities, a description of present facilities, including lists of cities with different types of waterworks and sewage plants.

Sewage Treatment

Load Distribution in the Activated Sludge Process.—By J. E. McKee and Gordon Fair, Reprinted from Sewage Works Journal, Jan., 1942. Apply to Harvard Graduate School of Engineering, Cambridge, Mass. 25 *pp.* 10c.

A report of the laboratory investigation of the effect of load distribution on the activated sludge process, including comprehensive suggestions for the design and operation of new and existing sludge plants by equipping them for multiple dosing.

Arc Welding

Lessons in Practical Arc Welding.—Published by Hobart Trade School, Inc., Troy, Ohio. 1942. 188 *pp.* 75c.

The complete series of 41 arc-welding lessons offered at the Hobart Trade School, covering Preliminary Instructions; Starting and Manipulating the Arc; Welding Common Joints With Bare Electrodes; Welding Light Gauge Sheets with Coated Electrodes; General Welding with Coated Electrodes in the Flat—Horizontal—Vertical—Overhead Position; Pipe Welding; Welding Cast Iron; Special Practice and Tests.

Guides for City Rebuilding

Better Cities.—Building America Series. National Resources Planning Board, Washington, D. C. 1942. 22 *pp.*

Boldly conceived principles and objectives for a thorough-going, comprehensive, down-to-the-roots program of city rebuilding after the war—one of a series of short statements on post-war planning objectives being drawn up by the National Resources Planning Board. (See page 55 of this issue.)

Tax-Abandoned Land

A Program for the Use of Tax-Abandoned Lands.—By The Committee on Tax-Abandoned Lands (Charles B. Bennett, Chairman), American Society of Planning Officials, 1313 *E. 60th St., Chicago, Ill.* 1942. *iii* + 43 *pp., mimeo.*

An analysis of the tax-delinquent land problem and its various ramifications and implications; method now in use for handling such problems; and recommendations for attacking the problem at its roots, by more than the usual temporary patchwork solution. The report discusses the reasons for and functions of a comprehensive land-use policy, and the relation of tax-abandoned land to such a policy.

New York Post-War Planning

Proposed Post-War Works Program.—City Planning Commission, New York. 1942. 32 *pp.*

Recommended post-war public works projects for 25 New York City departments, totaling $628,000,000. Plans are already completed for many of the projects; for most of the others it is proposed that plans and specifications be started immediately. The report is illustrated, and a map indicates the location of the proposed improvement.

Electric Plants

Power Plant Engineering and Design.—By Frederick T. Morse. D. Van Nostrand Co., Inc., New York. Second Edition, 1942. 703 *pp.* $6.50 *from* THE AMERICAN CITY.

Discusses power plant economics including income, plant types and rates; the various types of engine-generating units such as diesel water power, steam, and gas; and electrical and piping layouts and auxiliary equipment.

Utility Costs

Electric Utility Cost Units and Ratios.—Federal Power Commission, Washington, D. C. 1942. 113 *pp.* $1.00.

An analysis and correlation of data reported to the Federal Power Commission by privately owned Class A and Class B electric utilities, for the year 1938—in the form of plant-investment and operating-expense units, and operating and financial ratios—constituting statistical yardsticks which permit measurement and comparison of individual utility costs with costs in the industry generally.

Civilian Protection

Aerial Bombardment Protection.—By Harold E. Wessman, C.E., Ph.D., Member, American Society of Civil Engineers, and William A. Rose, M.C.E., Associate Member, American Society of Civil Engineers. John Wiley & Sons, Inc., New York. 1942. *vii* + 372 *pp.* $4.00 *from* THE AMERICAN CITY.

Written from lecture notes on a course on "Aerial Bombardment Protection" given at New York University, this book deals primarily with measures which can and should be undertaken to make building construction resistant to the effects of bombing, at reasonable cost. Based largely on information from foreign sources, it takes account of differences in building construction here and abroad.

Handbook of Civilian Protection.—Prepared by the Civilian Defense Council of the College of the City of New York. Edited by Louis L. Snyder, Ph.D., under the supervision of Richard B. Morris, Ph.D., Director, and Joseph E. Wisan, Ph.D., Chairman, Committee on Training Courses. Whittlesey House, New York. 1942. *xviii* + 184 *pp.* $1.25 *from* THE AMERICAN CITY.

A concise, comprehensive, practical manual for the layman, covering not only his part in air raids, but the subjects of conservation and salvage, and nutrition in the war-time emergency.

City Financial Problems

The Economic Crisis Facing Municipalities.—May, 1942, *issue of* MUNICIPAL FINANCE, *published by the Municipal Finance Officers Association,* 1313 *E. 60th St., Chicago, Ill.* 49 *pp.* 50c.

Some of the principal danger and stress points of the economic crisis facing cities, analyzed in 8 articles by experts.

City Legal Department

The Administration of Municipal Legal Services: The Chicago Law Department.—By Robert W. Siebenschuh. Public Administration Service, 1313 *E. 60th St., Chicago, Ill.* 1942. *vi* + 58 *pp.* $1.50.

The story of the reorganization of the Law Department of Chicago and its results; and a delineation of the present organization and management of the department, its operation, personnel, and the functioning of its research division. Twenty-eight forms which have increased the efficiency of the department, are reproduced.

War Traffic and Transportation Planning

Emergency Traffic Law Enforcement Program.—International Association of Chiefs of Police, Washington, D. C. 10 *pp.*

Presented not as a long-range traffic solution but to quickly reduce traffic accidents and increase the efficiency of traffic movements during the war, recommended emergency work programs for the agencies charged with traffic law enforcement: for the police; motor-vehicle administrators; governors, mayors, and city managers; prosecutors; judges and courts; and attorneys-general.

A Plan for the Conservation of Vital War Transportation.—Published by Automotive Safety Foundation, Washington, D. C., in cooperation with the Office of Defense Transportation, Washington. 1942. 17 *pp.* 11 x 14 *inches.*

A plan for local transportation conservation worked out as a test case by the State Highway Commission of Michigan, in Pontiac, and adopted by the United States Office of National Defense Transportation. Extremely effective in presentation, the publication outlines the plan, its promotion, and organization.

Automobile Transportation in the War Effort.—By Charles L. Dearing. The Brookings Institution, Washington, D. C. 1942. 47 *pp.* 25c.

An outline of the essential features of automobile ownership and use in this country, with an estimate of the classes of automobile use, and number of vehicles, required to maintain the national economy, and recommendations for their proper maintenance and distribution with the least disruption of the civilian economy.

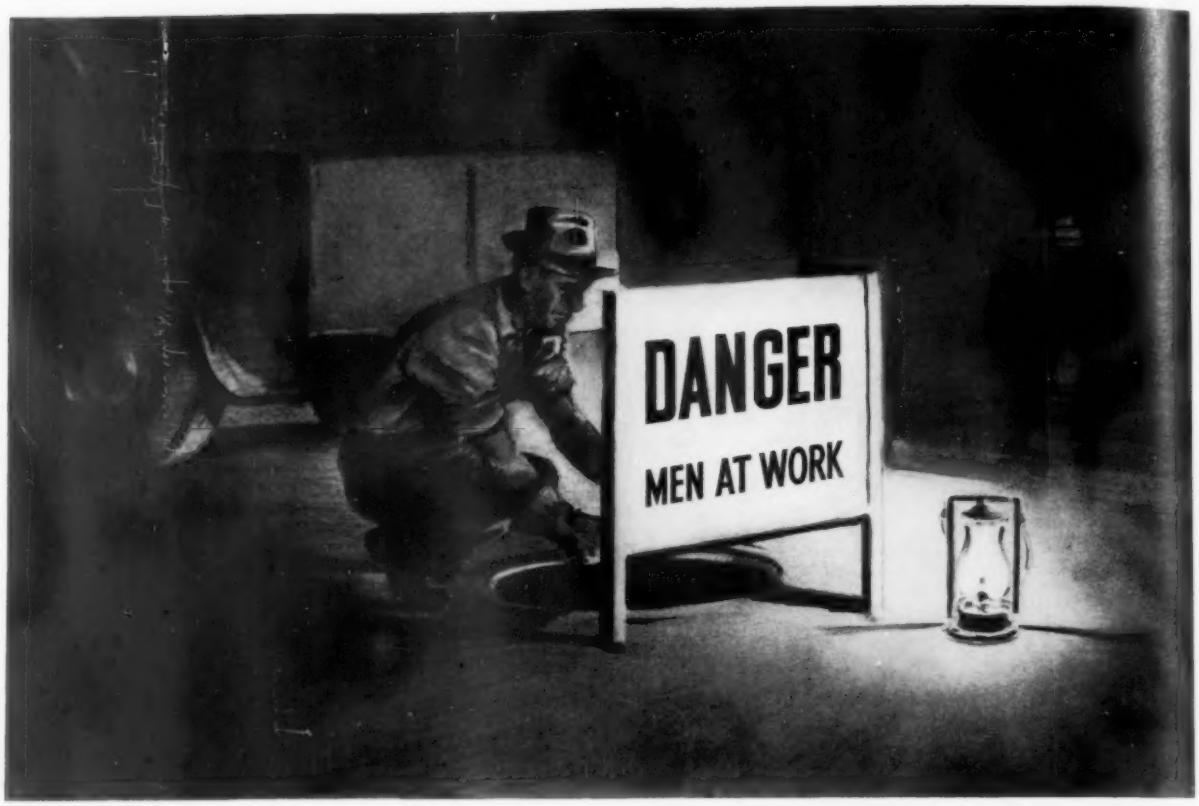
War Traffic Control—For Official Use Only.—U. S. Office of Civilian Defense, Washington, D. C. 19 *pp.*

Regulations and enforcement procedures covering actual "disaster areas" in the event of air raids or other real enemy action within cities or in the rural areas of the United States. Presented are a War Traffic Control Plan; Recommended Ordinance for Disaster Traffic Control; Reprint of War Department Training Circular.

Urban Economic Problems

Economic Problems of American Cities—Three Papers Presented at the 54th Annual Meeting of the American Economic Association, Dec. 27-30, 1941. Reprinted from the American Economic Review Supplement, Mar., 1942. 33 pp. Reprints not available, but the Supplement can be obtained from the Secretary of the American Economic Association, Northwestern University, Evanston, Ill.

The first article, "Economic Problems of American Cities," by Leverett S. Lyon, divides critical city economic problems into five main categories: the city's competition with its periphery; securing adequate revenue; limitations of the corporate unit; competition between cities; and war problems. This article, somewhat briefed, is also printed in the May, 1942, issue of *Municipal Finance*, published by the Municipal Officers Association, 1313 East 60th Street, Chicago. The second paper, "The Financial Problems of American Cities," by Frederick L. Bird, discusses city financial problems under three main headings: problems of financial management; problems involved in city-state-federal fiscal relationships; and fundamental economic changes in urban characteristics. The title of the third of these important papers, by Ernest M. Fisher—"Economic Aspects of Zoning, Blighted Areas, and Rehabilitation Laws"—indicates its contents.



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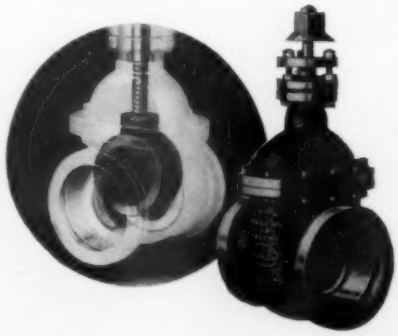

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City Financial Administration

Municipal Accounting—Principles and Procedure.—By Lloyd Morey, A.B., C.P.A., LL.D., Professor of Accountancy and Comptroller, University of Illinois, and Orval W. Diehl, B.S., C.P.A., of Gauger & Diehl, Certified Public Accountants, Decatur, Ill. Successor to Manual of Municipal Accounting by Lloyd Morey. John Wiley & Sons, Inc., New York. 1942. xiv + 415 pp. $4.50 from THE AMERICAN CITY.

The underlying principles of financial administration, with particular reference to city governments, and the relation to and application of accounting in its various phases to these underlying principles. 81 forms included.

Defense Town Problems

Boom Towns of Defense.—April, 1942, issue of The Journal of Educational Sociology, New York University, Washington Place, New York City. Charles P. Taft, Issue Editor. 60 pp. 35c.

A picture of the serious and insistent problems faced by defense communities in which military and naval concentrations or defense industries are located, and of the ways in which they are being met. The subject is covered in five articles which examine defense towns of various types, and the general problems of community organization and provision of community facilities in such areas.

Depressed Community Problems

Seven Stranded Coal Towns—A Study of an American Depressed Area.—By Malcolm Brown and John N. Webb. Research Monograph XXIII, Division of Research, Federal Works Agency, Work Projects Administration, Washington, D. C. Apply to U. S. Government Printing Office, Washington, D. C. 1941. xxvi + 188 pp.

The seven communities that are the subject of this illustrated report constitute one of the fifty-odd depressed areas of the country, which contain one-tenth of the population, about one-sixth of all the unemployed, and one-fifth of the recipients of public assistance in the country. The report outlines the economic history and present condition of the towns; the causes of the problems they face; and possible solutions for their relief.

Property Condemnation in Wartime

Expropriation of Property for National Defense.—Prepared in the Lands Division, Department of Justice, Washington, D. C. xix + 159 pp. mimeo.

An inventory and examination of legal equipment and processes for the expropriation of property in times of peace or war—the first complete treatment of the subject.

Agency War Activities

War Agency Handbook.—Bureau of Planning, Division of Commerce, Albany, N. Y. Bulletin No. 47. 1942. 118 pp., mimeo.

More than 130 federal, state, and semi-official agencies dealing with war activities within New York State, listed by agency, by activity, and alphabetically, and with descriptions of their war programs.

The Citizen in the War

You and the War.—University of South Dakota, Vermillion, S. D. Free.

A series of 5-page mimeographed bibliographies dealing with various wartime subjects of interest to citizens groups and individual citizens, the first four covering The War and the Peace; Home Defense; Agriculture and Defense; and Local Government and Defense.

Recent Housing Developments

Recent Trends in Housing in the United States.—By Sydney Maslen, Secretary, Committee on Housing, Community Service Society of New York, 105 E. 22nd St., New York. 21 pp., mimeo.

A discussion of ten broad, recent trends in housing development in this country.

City Government Yearbook

The Municipal Year Book, 1942—The authoritative résumé of activities and statistical data of American cities.—Clarence E. Ridley and Orin F. Nolting, Editors. The International City Managers' Association, 1313 E. 60th St., Chicago, Ill. 1942. x + 685 pp. $8.50.

Each year the Municipal Year Book arrives a little thicker—new features added to its compact collection of useful information and data on current municipal-government activities and trends, in this country. This year, these include a survey of local defense councils in the United States; maps of the states showing counties, cities, towns, and villages; data on salary and wage increases of municipal employees; information on municipally operated off-street parking lots; etc. Regular features—which range from population data to a discussion of public library developments, from fire department data to a listing of model municipal ordinances—are contained again in five main parts: Governmental Units; Municipal Personnel; Municipal Finance; Municipal Activities—covering 16 functions; Directories of Officials.

City Managers

Recent Council-Manager Developments and Directory of Council-Manager Cities.—The International City Managers' Association, 1313 E. 60th St., Chicago, Ill. 1942. 16pp. $1.00.

Data on the growth and extent of city-manager government in United States cities, with a directory of approved council-manager cities, and their city managers.

Suggestions for City Clerks

A Manual for City and Village Clerks in Wisconsin.—League of Wisconsin Municipalities, 30 E. Johnson St., Madison, Wis. 1942. 144 pp. $1.00.

A practical handbook of suggestions on the organization and administration of the work of the city clerk. (See also page 62 of this issue.)

Police Department Survey

The Holyoke Police Department.—By Gordon Huggins. Holyoke Taxpayers' Association, Holyoke, Mass. 1942. 29 pp., offset.

An analysis of the functioning of the Holyoke police department, compared with other cities, and with recommendations for improvements.

Local Finance Supervision

State Supervision of Local Finance—Proceedings of a Conference held in Washington, D. C., Dec. 4, 5, 16, 1941, sponsored by the Municipal Finance Officers Association, the United States Bureau of the Census Cooperating. Apply to the former, 1313 E. 60th St., Chicago, Ill. 127 pp., mimeo.

Proceedings of a conference of state supervisors of local finance, held in Washington, consisting largely of informal discussions of state auditing, supervision, and reporting of local government finance, and of state-prescribed accounting procedures for local government.

State Supervision of Local Borrowing.—Bureau of Government, University of Michigan, Ann Arbor, Mich.

A discussion of the trend and character of Michigan local debt, the various methods of control—statutory, constitutional, and administrative—and suggested devices for preventing a future recurrence of recent local debt difficulties.

Sales Tax Analysis

Again the Sales Tax!—April, 1942, issue of TAX POLICY, *published by the Tax Institute (formerly Tax Policy League), 135 S. 36th St., Philadelphia, Pa. 12 pp., offset. 25c.*

A condensed discussion of the sales tax: recent sales-tax proposals; characteristics of the tax; estimates of its yield; experience with the tax; its advantages and disadvantages.

School Buildings and Grounds

The American School and University.—American School Publishing Corporation, 470 Fourth Ave., New York. Fourteenth Annual Edition, 1942. 491 pp. $2.50.

Although there will be little school-building construction in the near future, there is more reason than ever to make the most efficient use of existing school plants; there is more time than ever to formulate well-thought-out plans for future construction. To facilitate these ends, the editors of this 14th edition of The American School and University assemble, as in past years, a rich collection of information and suggestions, liberally illustrated, on new developments in the design, construction, equipment, utilization, and maintenance of educational buildings and grounds. The yearbook lists again school officials and school-building architects, and aids available to local school boards from state departments.

City officials will be interested in the increasing emphasis throughout the volume of the place of the school in the community and its use as a center of community activities. The article, "The Impact of the War upon School Building Planning," brings out this trend; another article takes up "The Planning of School Grounds for Community Use."

Housing Council Report

The First Five Years.—Citizens' Housing Council of New York, 470 Fourth Ave., New York. 1942. 23 pp.

A lively account of the first five full years of accomplishment of the pioneer Citizens' Housing Council of New York, covering three main phases—planning a housing program for the city, implementing the program, and interpreting the city's housing problems and the program to the public.

Coordinating Community Services

A Guide to Community Coordination.—Coordinating Councils, Inc., 147 W. 12th St., Los Angeles, Calif. 1942. 21 + vii pp. 25c.

Councils to coordinate community services, composed of representatives of private and governmental service agencies and organizations, are rapidly growing in number. This is a handbook for such coordinating community, and neighborhood councils in cities and towns of under 25,000 population, covering purpose and function, membership and organization, activities and finance.

Handbook for Civic Groups

Let's Try Thinking—A Handbook of Democratic Action.—By Ivah Deering. The Antioch Press, Yellow Springs, Ohio. 1942. 199 pp. $1.50, paper bound; $2.50, cloth bound; from THE AMERICAN CITY.

A discussion of group thought and action in a democracy and particularly in a democracy at war. Part One analyzes the theory of group thinking and democratic leadership; Part Two discusses its practice and application to many types of organized activity—national conferences, staff meetings, forums etc.; Part Three gives a classified list of suggested discussion topics and a bibliography.

City Planning Text

Planning Cities for Today and Tomorrow.—By Fred A. Crane. Basic Social Education Series. Row, Peterson and Co., Evanston, Ill. 1942. 48 pp. 32c.

The fundamental concepts of city planning, written for the classroom in surprisingly brief, simple fashion, with an approach which brings them home to the individual city dweller. Effectively illustrated.

City Planning Education

You and Your Town.—By Alice Clement Kelsey. Published by New England Town Planning Association, Boston, Mass. 1942. 16 pp.

Outline of an education project in town planning, for use in departments of social studies in secondary schools.

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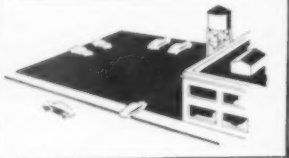

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Financial Statistics

Two publications of the Bureau of the Census, U. S. Department of Commerce, Washington, D. C.:

State and Local Government Debt: 1941.—*Final Report.* 1942. 52 *pp., mimeo.*

Second report on state and local public debt, bringing up-to-date information contained in the 1940 report, covering total public debt, debt trends, per capita debt, bond maturities, interest payments, types of liabilities, intergovernmental relations, and debt of states and of specified local governments.

Federal and State Aid: 1941. *State and Local Government Special Study No.* 19, 1942. 51 *pp., mimeo.*

An analysis of the characteristics of federal and state aid to lower units of government, by unit paying and receiving, purpose or functions aided, source, basis of distribution, and degree of control which accompanies aid; and description of and tabular data on, federal and state aid for particular purposes.

Financial Statistics of Cities: 1939—*Vol.* 2: *Summary Bulletin.—Bureau of the Census, U. S. Department of Commerce, Washington, D. C. Apply to U. S. Government Printing Office, Washington, D. C.* 1942. 30 *pp.* 10c.

Financial statistics for general government and for public-service enterprises, of 94 cities of 100,000 population or over (estimates as of July 1, 1939), in totals, by population groups, and separately for each city.

Tax Delinquency, 1930-1941, *Cities of Over 50,000 Population.—By Frederick L. Bird, Municipal Service Department, Dun & Bradstreet, Inc., 290 Broadway, New York.* 1942. 36 *pp.*

Data and summary conclusions on municipal tax delinquency: collections and delinquency of current levies; and collection of accumulated delinquent taxes.

Municipal Bond Sales for the Year 1941—*Thirty-Ninth Annual Edition.—The Bond Buyer, 67 Pearl St., New York.* 1942. 192 *pp.* $10.00 *from* THE AMERICAN CITY.

A record of the domestic and foreign government, state and municipal, bond sales in the United States during the year 1941, including comparisons of municipal and state financing with other years.

City Densities

Land Area and Population Density of the Metropolitan Districts of the United States: 1940—*Bureau of the Census, U. S. Department of Commerce, Washington, D. C.* 1942. 5 *pp.*

Of the total population of the United States, 47.8 per cent live in 1.5 per cent of the country's area. This is one of the interesting findings cited in this release, which gives summary figures for total population, land areas, and population per square mile, of the central and suburban areas of all the metropolitan districts of the country. Detailed statistics on population and housing in individual metropolitan districts were presented in Series PH-1 of the census releases (see THE AMERICAN CITY—Apr., 1941, p. 5; May, 1941, p. 52; and Jan., 1942, p. 83).

Bibliographies

Design of Play Areas: A Selected List of References.—Compiled in the Library of the Department of Landscape Architecture and Regional Planning, Harvard University, Cambridge, Mass., by Katherine McNamara, Librarian. 1942. 4 *pp., mimeo.*

Bibliography on Community Activities and Facilities in Housing Projects.—Prepared by Judith Hodson. Citizens' Housing Council of New York, Inc., 470 Fourth Ave., New York. 1942. 18 *pp.* 25c.

Defense bibliographies compiled by the Municipal Reference Library, Los Angeles, Calif.:

Fire Service During War Time. 1942. 9 *pp., mimeo.* 10c.

Police Service During War Time. 1942. 9 *pp., mimeo.* 10c.

Government Measuring Criteria

General Appraisal Standards and Methods for Measuring Public Administration.—By Douglas Clack, M. A. Studies in Standards, Institute of Politics, Bloomington, Ind. 1942. 23 *pp., mimeo.* 25c.

An examination of the means for measuring standards of efficiency in the management and production phases of public administration, with an outline of the procedure for setting up an appraisal program.

Annual Reports

CHICAGO, ILL.—Annual Report, Police Department, 1941. 24 pp.
—Annual Report, Treasurer, 1941. 40 pp.

CINCINNATI, OHIO.—Annual Report, 1941, Regional Planning Commission—Jan.-Feb., 1942, issue of *Planning Progress.* 6 pp., mimeo.

DETROIT, MICH.—Annual Report, City Planning Commission, 1941. 47 pp., mimeo.

EPHRATA, PA.—Annual Report, 1941. 44 pp.

LOS ANGELES, CALIF.—Accomplishments, 1941. 8 pp.

MCPHERSON, KANS.—Annual Report, 1941. 48 pp.

MINNEAPOLIS, MINN.—Annual Report, Fire Department, 1941.
—Budget Facts and Financial Statistics for 1942. 36 pp.

NEW LONDON, CONN.—Financial Reports, year ending Sept. 30, 1941. 32 pp.

NEW ROCHELLE, N. Y.—Annual Report, Auditor, 1941. 173 pp.

OAK PARK, ILL.—Annual Report, Department of Public Works, 1941. 69 pp., mimeo.

PORTLAND, ORE.—Annual Report, City Auditor, 1941. 124 pp.
—Debt Statement, Mar. 31, 1942. 6 pp.

READING, PA.—Annual Report, 1941. 203 pp.

SALINA, KANS.—Annual Report and General Information, 1941. 40 pp.

SALT LAKE CITY, UTAH.—Annual Report, Auditor, 1941. 82 pp.

TENNESSEE.—"Ten Telling Years"—Annual Report, 1941, Tennessee Taxpayers Association, Nashville. 36 pp.

WAUKESHA, WIS.—Annual Report, City Engineer, 1941. 47 pp., mimeo.

WAYNE COUNTY, DETROIT, MICH.—Annual Report, Board of Road Commissioners, 1941. 106 pp.

WESTMOUNT, QUEBEC, CANADA.—Annual Report, 1941. 44 pp.

WINNIPEG, CANADA.—Annual Report, 1941, City Hydro. 19 pp.

WINSTON-SALEM, N. C.—Statement of Financial Information, 1942. 13 pp.

Other Reports Received

Arkansas Tax-Forfeited Land—Manual of Policies and Procedures.—Land Use Committee of the State Planning Board, Little Rock, Ark. 1941. 24 pp.

Charter of the City of Kerrville, Texas. 1942. 56 pp.

Publications of the Civilian Protection Division, Seattle Municipal Defense Commission, Seattle, Wash.: Training Course for Air Raid Wardens. 1942. 45 pp. Facts for Air Raid Wardens and Every Civilian—Bombs, Incendiaries, War Gases, Home Protection. 1942. 46 pp.

The Effect of an Emergency upon the Police Powers of a City.—League of California Cities, Berkeley, Calif. 1941. 45 pp. mimeo. $1.00.

Federal Aid Programs in Massachusetts.—Prepared for Massachusetts Special Commission on Intergovernmental Relations, by the Boston Municipal Research Bureau, Boston, Mass. 1942. 31 pp., mimeo.

Handbook of Information.—Illinois Municipal Retirement Fund, 135 S. LaSalle St., Chicago, Ill. 1942. 16 pp.

Housing and the Increase in Population.—Bureau of Labor Statistics, U. S. Department of Labor, Washington, D. C. 1942. 24 pp.

"I Am An American Day in South Dakota."—By William O. Farber. The Governmental Research Bureau, University of South Dakota, Vermillion, S. D. 1942. 33 pp., mimeo.

Municipal Art Commission.—Municipal Art Commission, Los Angeles, Calif. 1941. 9 pp.

Available from the Municipal Reference Library, 1005 City Hall, Chicago, Ill.: An Ordinance providing for a Comprehensive Unified Local Transportation System for the City of Chicago and its Metropolitan Area. 1942. 95 pp. An Ordinance recommended for Passage by the Committee on Buildings and Zoning. 1942. 50 pp.

Publications of the Office of Civilian Defense, Washington, D. C.: Guide for Planning the Local Victory Garden Program. 1942. 13 pp. Local Civilian Defense Information Committees—A Suggested Plan of Organization. 9 pp. Protection of School Children and School Property. 1942. 11 pp.

Protection of Hospitals. 1942. 22 pp.

Pattern of Community Progress.—You and Industry, New Series, National Association of Manufacturers, 14 W. 49th St., New York. 19 pp.

Planning, Zoning, and Housing Laws—A Review of Legislation Affecting State, County, Township, and Urban Planning, Housing, and Zoning.—Michigan Planning Commission, Lansing, Mich. 1942. 21 pp., mimeo.

Population Mobility in Austin, Texas.—Bureau of Research in the Social Sciences, The University of Texas, Austin, Texas. 1941. 78 pp.

Practices and Experiences of Various Virginia Cities and Towns in the Reduction in the Use of Municipal Motor Equipment during the Emergency.—League of Virginia Municipalities, 902 Travelers Building, Richmond, Va. 1942. 4 pp. 25c.

Proceedings, 1941, Annual Meeting of the Institute of Traffic Engineers, held at Chicago, Ill., Oct. 4-7, 1941. 1942. 167 pp.

Program and Course Outlines—Short Course on Municipal Government and Its Problems: Old and New. 1942. 17 pp., mimeo.

What to Do About RUST in Your Water Tank

You have THREE choices:

1. **Let 'er rust** (and soon you'll be buying a new tank)
— OR —
2. **Paint the inside annually** (your paint bill will just about equal the annual deterioration under **Choice No. 1**)
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Calco-Hardesty Gates have "gone to war" along with most other metal products. Now they may be obtained only for important war projects where they are needed to eliminate the danger of high water flooding valuable property.

In war as in peace these gates are ideal for drainage, flood control, sewer outfalls and wherever else backwater is a hazard. They are easily installed on any type of drainage construction by unskilled labor.

There is a size and type of gate to meet every requirement. These include automatic drainage gates that open and close without power or supervision; light- and heavy-duty slide gates; and automatic radial gates to keep water levels constant.

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News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

A bulldozer, mounted on a Caterpillar Tractor, helps Lacon, Ill., clear the damage resulting from a tornado

Clearing Debris after a Storm

After the calm—the storm. And then after the storm, a "Caterpillar" Diesel D6 Tractor helps clear away the damage.

When a tornado roared through the city of Lacon, Ill., 25 miles upriver from Peoria, several persons were killed and property damage was estimated at more than a half million dollars. Scores of trees were uprooted, broken off, or damaged to such an extent that they had to be removed.

Among the equipment at work during the clean-up was a bulldozer loaned to Lacon City officials by the Caterpillar Tractor Co., Peoria, Ill. Working in the heart of the devastated area, the tractor helped remove stumps and then filled up the resulting holes, speeding up work to a remarkable extent.

Booklet by Darco Corp. on Activated Carbon Use

A new booklet has been published by the Darco Corp., 60 E. 42nd St., New York City; entitled "8 Ways to Get the Most from Darco."

According to W. A. Helbig, Chemical Engineer for the Darco Corp., the all-out effort in victory production has resulted in serious demands on the activated carbon industry. In view of this the Darco Corp. has provided this booklet that will show how to make activated carbon go the farthest in productive usefulness.

The booklet discusses choosing the right grade of Darco, determining minimum dosage, treating processes including temperature and pH control, and also its relation to filtration equipment. This booklet may be obtained by writing to the Darco Corp. at the address given above.

WPB Frees Construction of Roads and Streets

WPB moved May 12 to permit municipal, federal, state, and county agents to begin construction of many public roads without individual authorization of each project under provisions of Conservation Order L-41. This order previously placed construction of all kinds under rigid control. These programs may be started for the building of essential public roads and streets by simply filing monthly reports.

Only materials which are ordinarily available locally such as sand, gravel, etc., may be used in building roads under the May 12 authority, since it is provided that no important types of steel, except from stocks already in the hands of road departments or contractors, may be incorporated in the projects.

The Director of Industry Operations may at any time order the road department to cease work upon any road project permitted under the May 12 authorization, if he determines that the labor, material, and construction equipment needed to complete the project are more urgently needed in the war effort.

Extra-Strength Clay Pipe for Heavy Loads

Vitrified clay sewer pipe has now been developed to carry a load possibly double that required of clay pipe now in general use. This is in accordance with a recent statement issued by the Clay Sewer Pipe Association, Inc., 947 Oliver Bldg., Pittsburgh, Pa.

This new pipe receives its strength by an increase of 25 per cent in the thickness of the walls. It is a standard material for highway construction and is fully described by standard specification No. M. 65-42 of the American Association of State Highway Officials.

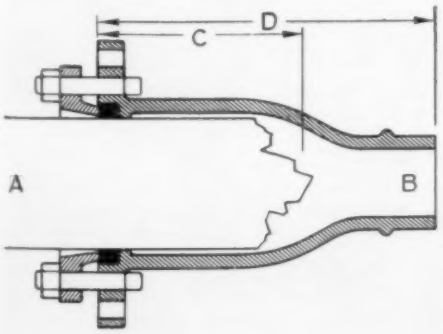
The Clay Sewer Pipe Association recommends it for use under modern heavy duty highways where shallow cover is required, at airports, and on railroad construction. This pipe, it is pointed out, contains no essential metals.

Geist New President of Allis-Chalmers

Max W. Babb, Board Chairman of the Allis-Chalmers Mfg. Co., Milwaukee, Wisc., announced that Walter Geist had been elected President at a meeting of the Board of Directors held in Milwaukee on May 7. In this capacity Mr. Geist will replace Mr. W. C. Buchanan, whose resignation was forced by ill health a few weeks ago.

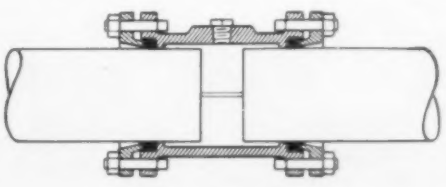
Mr. Geist entered the company's employ as an errand boy in 1909. From that job, he advanced to a tracer, draftsman, designer. When he was 31 years old he was made Engineer-in-Charge of Transmission.

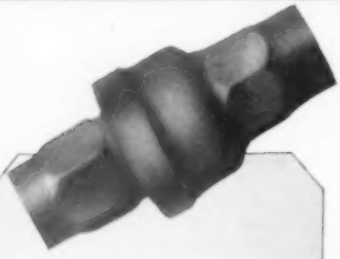
Mr. Geist is known for his development of the Texrope V-Belt Drive. Adapted first to the textile industry, it now finds a broad and active service in many fields.



Emergency Repairs for Cast-Iron Mains

In planning for emergency repair of cast-iron pipe, James B. Clow and Sons, 201-299 No. Talmen Ave., Chicago, have developed special adapter sleeves that can quickly restore water service through a damaged main. Repair fittings include one set of sleeves that facilitate reduction in pipe size at the fracture. This type, illustrated at the left, allows the temporary use of smaller pipe to replace a complete section that may have been destroyed. The split repair sleeve, shown on the right, handles simple fractures in the line.





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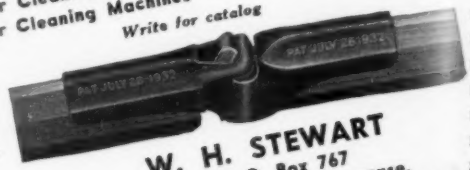

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Item 1—Worthington Pump & Machinery Corp., Harrison, N. J. Descriptive Data: Westinghouse Line Start Induction Motor directly connected to Worthington Pump.

Motor Data:	Type CS	Pump Data:
Constant Speed	Class 1	S. N. 1007556
H.P. 10, Cycles 60	Frame WS324	Driver H.P. 10
Volts 220/440	Phase 3	R. P. M. 1750
Amps. 23.6/11.8	R.P.M. 1755	T. D. H. 25 ft.
Style 65W707	S. N. 1-65W707	G. P. M. 1000
Constant Rating at full load—50		Pump 5L1

This unit is practically new, and has been in operation 20 hours.

Item 2—Cleveland Worm & Gear Co., Cleveland, Ohio. Descriptive Data: G. E. Induction Motor directly connected to Cleveland Reducing Gear.

Motor Data:	Reducing Gear Data:
Model 5K284A758	Size 100-AT
Volts 220/440	Series 26
Amps. 9.91/4.96	Ratio 40-1
Frame 284—Cycles 60	R. P. M. 860
Type K—H.P. 3	H.P. 3
S. N. BL1640	No. R23804
Speed FL860	3-sprocket drive & chain

Item 3—The Dorr Co., Inc., 570 Lexington Ave., N. Y. C. Descriptive Data: Westinghouse A.C. Motor directly connected to Dorr Reducing Gear.

Motor Data:	Reducing Gear Data:
Type CS—H.P. ¾	Model PGW
Phase 3	H.P. ¾
Volts 220/440—Amps. 3/1.1	Size No. 39737
Style 753334	Type OW
Frame W224	R. P. M. 900
Cycles 60	Ratio 258-1
R. P. M. at full load 870	Order No. 3166
S. N. 6518493	S. N. 6170

Items Nos. 2 and 3 are brand new and have never been used.

3 only Sweitzer and Conrad 25000 Volt Type K.C.-5N, Cat. No. 72003 fusible disconnect switches.

3 only Type H. T. Form K. General Electric Co. Oil Circuit Breakers.

1 only Marble Panel Mounted with
1—N. P. Thomson Ammeter No. 4777A
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75 Kilowatts, 13200 Volts, 41 Amps. Oil Switch

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Wallace and Tiernan Employees Contribute to Navy Relief Fund

A check for $6,500 for Navy Relief is handed to Capt. Reynolds Hayden, Medical Officer of the Third Naval District, by Martin Tiernan, President of Wallace & Tiernan Co., Inc., Newark, N. J., as John Walker and Miss Bertha M. Lindsay representing the employees, look on. At the extreme right is Lt.-Com. John H. Auerbach. The gift was unanimously subscribed by W&T employees who worked overtime without compensation and the management contributing the value of the products manufactured. The Navy Relief Society, making its first public request for funds, had been supported entirely by Navy Personnel until Pearl Harbor. Families of fighting men in the Navy, Marines, and Coast Guard have received aid from the Society since the early days of the U. S. Navy

Pennsylvania Salt Transfers McCrory

Dean E. McCrory, attached to the Pittsburgh office of the heavy chemical sales division of the Pennsylvania Salt Mfg. Co. since 1936, has been transferred to the company's executive offices in Philadelphia.

Mr. McCrory was graduated from Franklin and Marshall College and took graduate work in sanitary engineering at Carnegie Tech.

Mathieson Constructs New Ammonia Plant

Plans for the immediate erection of a plant that will substantially increase the supply of ammonia and its derivatives were announced recently by E. M. Allen, President of The Mathieson Alkali Works, Inc., 60 E. 42nd St., New York.

In accordance with the terms of a contract that has just been signed, the new plant will be financed by the Defense Plant Corporation and will be erected and operated under lease by the Mathieson organization, Mr. Allen stated. The ammonia will be produced synthetically, through the use of a modification of existing methods.

Answers to Sewerage Quiz

(*See page 13*)

1. *False.* Sludge gas will not explode unless mixed with air or oxygen.
2. *True.*
3. *True.*
4. *True.* The most unstable portion of the organic matter has been broken down; but the remaining organic matter breaks down so slowly that it does not cause nuisance.
5. *False.* A water hose should never be left submerged in sewage as this constitutes a cross-connection with the water supply and is dangerous.
6. *False.* Final effluent samples should be taken after all treatment has taken place. Chlorination is part of the treatment.
7. *True.*
8. *True.*
9. *False.* While a filter is flooded it is not treating sewage. Flooding should not be done any more often or for a longer period than is absolutely necessary.
10. *True.*

ASARCO
TUBE-LOY

AMERICA'S NO. 1
MAIN-TO-METER
WATER SERVICE

TYPE K TUBE-LOY water service pipe, widely employed throughout America, is worthy of your immediate examination. This product, extensively installed before the war emergency, has been approved by major cities throughout the country as a dependable medium for permanent use.

The installation of Type K Tube-Loy is simple. Either wiped solder joints or standard copper flare or compression fittings, may be used successfully. In addition, we have developed, through the Grinnell Company, a special flare fitting manufactured from galvanized malleable iron, which is readily available. This fitting has been specifically designed for use with our product. Unlike ordinary fittings, its long, tapered flare provides a greater contact area between the fitting and Type K Tube-Loy, to form a strong, valve seat joint.

Asarco Type K Tube-Loy and Grinnell Superseal Flair Fittings are adequately described in our new catalog which will be published shortly. Write for it.

Both products are available for prompt shipment!

ASARCO LEAD PRODUCTS DIVISION PRODUCTS

AMERICAN SMELTING and REFINING COMPANY
LEAD PRODUCTS DIVISION
120 BROADWAY NEW YORK

SMITH

M *eters and miscellaneous equipment*

I *nserting machines for valves*

T *apping machines*

H *ydrants and valves*

THE A.P. SMITH MFG. CO. EAST ORANGE, N.J.

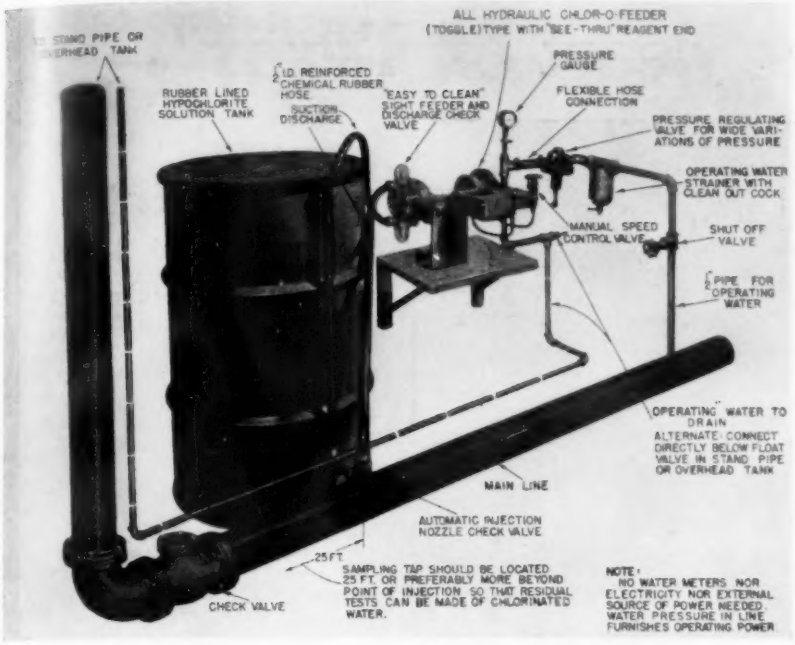
Symbol of Quality Since 1889

Over 50 years of service to the water works field and, while those years have seen many changes in the design, production and usage of water works equipment, A. P. Smith has always kept abreast of the needs of water works plants. Men have grown old in the service of A. P. Smith and their skillful craftsmanship is known to water works men the world over.

THE A. P. SMITH MFG. CO., EAST ORANGE, N. J.

7 So. Dearborn St. Chicago, Ill. | 901 Wm. Oliver Bldg. Atlanta, Ga. | 409 Texas St. El Paso, Texas | 524½ First Ave. South Seattle, Wash. | 59 Oak Vale Ave. Berkeley, Calif. | 315 N. Crescent St. Flandreau, S. D.

When you write for that catalog, kindly mention THE AMERICAN CITY.


ALL HYDRAULIC CHLOR-O-FEEDER
(TOGGLE) TYPE WITH "SEE-THRU" REAGENT END
TO STAND PIPE OR OVERHEAD TANK
PRESSURE GAUGE
½ I.D. REINFORCED CHEMICAL RUBBER HOSE
RUBBER LINED HYPOCHLORITE SOLUTION TANK
SUCTION DISCHARGE
"EASY TO CLEAN" SIGHT FEEDER AND DISCHARGE CHECK VALVE
FLEXIBLE HOSE CONNECTION
PRESSURE REGULATING VALVE FOR WIDE VARIATIONS OF PRESSURE
OPERATING WATER STRAINER WITH CLEAN OUT COCK
MANUAL SPEED CONTROL VALVE
SHUT OFF VALVE
½ PIPE FOR OPERATING WATER
OPERATING WATER TO DRAIN
ALTERNATE: CONNECT DIRECTLY BELOW FLOAT VALVE IN STAND PIPE OR OVERHEAD TANK
MAIN LINE
AUTOMATIC INJECTION NOZZLE CHECK VALVE
25 FT.
SAMPLING TAP SHOULD BE LOCATED 25 FT. OR PREFERABLY MORE BEYOND POINT OF INJECTION SO THAT RESIDUAL TESTS CAN BE MADE OF CHLORINATED WATER.
CHECK VALVE
NOTE: NO WATER METERS NOR ELECTRICITY NOR EXTERNAL SOURCE OF POWER NEEDED. WATER PRESSURE IN LINE FURNISHES OPERATING POWER

The all hydraulic Chlor-O-Feeder operated by the hydraulic pressure in water line and controlled by manual adjustment needs no outside source of power for operation and is accordingly protected against this type of breakdown

Chemical Feeder Operates on Water Pressure

In meeting the requirements of various water-supply systems in locations where water is the only available source of energy, Proportioneers, Inc., 99 Coddington St., Providence, R. I., has developed equipment that utilizes water as a source of power for the mechanical feeding of various chlorine compounds.

Machines so designed have the advantage of meeting the automatic fluctuations in the rates of flow from night periods to the daily normal flows. Proportioneers, Inc., points out that there is no operating expense for electric current, and that automatic or semi-automatic maintenance of treatment is possible. The dosage is controlled through the customary length of stroke adjustment of the machine.

McDonald Sales Manager for Caterpillar Co.

John Q. McDonald

The promotion of John Q. McDonald to General Sales Manager is announced by Caterpillar Tractor Co., Peoria, Ill.

Mr. McDonald has served as Export Sales Mgr. since May 1940. A native of Lompoc, Calif., and a graduate of the University of California, he was commissioned as a pilot of the U. S. Army Aviation Corps and served throughout World War I. In 1927 he joined "Caterpillar" as supervisor of agricultural sales for the western United States and the western part of Canada.

INSTALLATIONS WORLD WIDE
LARGEST CITY TO SMALLEST VILLAGE

VALVES COMPLETE EQUIPMENT FOR WATER WORKS FILTRATION AND SEWAGE DISPOSAL PLANTS
LATEST "COREY TYPE" HYDRANTS

Write for Catalogue and Information
IOWA VALVE CO.
General Offices:
Hubbell Bldg., Des Moines, Iowa
Plant:
Oskaloosa, Iowa

BEAT THE BOMBERS!

Save LIVES with FEDERAL AIR RAID SIRENS

Tested and Proved in Europe!

Every city—every manufacturing plant should install efficient air raid warning sirens at once!

Federal Electric Company—the largest Siren manufacturer in the world is ready to help you!

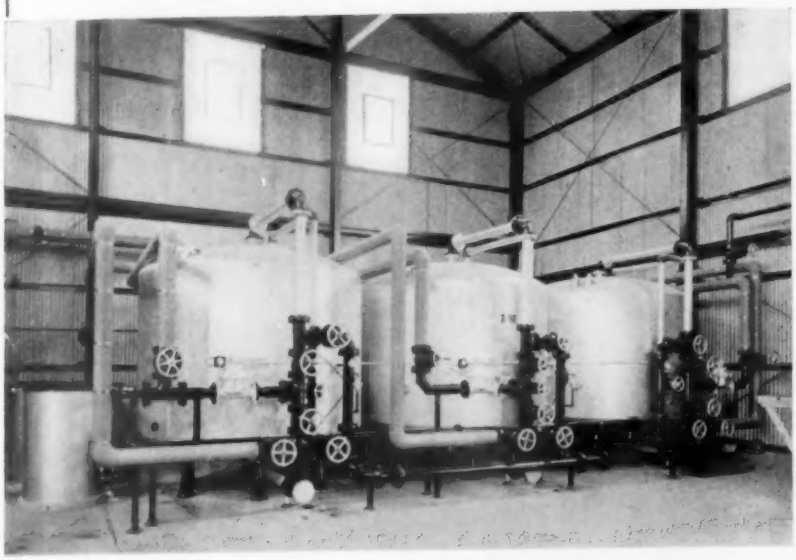
Federal Air Raid Sirens have been proved under actual bombing conditions in Europe since 1938!

Write on official stationery, or wire for special air raid protection data telling how to plan, install and operate air raid warning sirens!

For earliest possible delivery ACT NOW!

FEDERAL ELECTRIC CO., INC.
"Siren Headquarters"
8744 South State Street, Chicago, Illinois

"Deep in the heart of Texas"—



are these three 108" x 72" LAKESIDE Zeolite Softeners busy supplying the soft-water requirements of one of our great army camps.

We invite comparisons with other installations of water softeners.

Write for Information

Write for information also on the LAKESIDE Aero-Filter which obtains its results by excellent distribution—not by recirculation.

High Capacity—High Degree of Purification—Low Initial Cost and Low Operating Cost.

LAKESIDE ENGINEERING CORP.
222 WEST ADAMS STREET CHICAGO, ILL.
WATER SOFTENING, FILTERING AND CONDITIONING

Modern Garbage Collection
COSTS LESS THE HEIL WAY
Actual city records show that it costs less to collect garbage with new, modern equipment. Heil municipal equipment is built to do the job more dependably for less money. It will pay you to get Heil recommendations before you buy.

HEIL HYDRAULIC DUMP UNIT

HEIL STREAMLINE STREET FLUSHER

THE HEIL CO.
MILWAUKEE, WISCONSIN HILLSIDE, NEW JERSEY

THOMPSON MATERIALS & EQUIPMENT FOR MUNICIPALITIES

★ CONCRETE CURING MATERIALS
- Hunt Process
- Ritecure
- Cotton & Fibre Mats
- Salt Hay
- Paper

★ EXPANSION JOINTS
- Bituminous—Fibre
- Asphalt
- Cork
- Wood
- Rubber Latex

★ BITUMINOUS MATERIALS
- Emulsions—Cutbacks
- Waterproofing
- Penetration
- Joint Filler

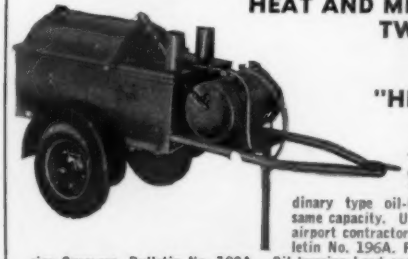
★ MISCELLANEOUS ITEMS
- Joint Supports
- Joint Caps
- Carbon Black
- Tarpaulins

★ THOMPSON SPRAY MACHINES
- New and Rentals

Write for illustrated literature and estimates

THOMPSON MATERIALS CORPORATION
Sales Office: 204 West St., N. Y. C.
General Office: 303 Cortlandt St., Belleville, N. J.

SAVE 50% ON FUEL—SPEED UP WAR WORK
HEAT AND MELT ASPHALT TWICE AS FAST
WITH THE
AEROIL "HEET-MASTER" KETTLE



The "HEET-MASTER" will produce as much "hot stuff" as two ordinary type oil-burning kettles of the same capacity. Used by leading road and airport contractors. Send for FREE Bulletin No. 196A. For Cut-Back and Emulsion Sprayers, Bulletin No. 190A. Oil-burning Lead and Pipe Compound Melting Furnaces, Bulletin No. 176A. Portable Oil Burner & Torch Outfits, Bulletin 174A. Asphalt Paving Tools & Accessories, Bulletin 312A. Asphalt Paving Tool Heaters and Asphalt Pavement Heaters, Leaflet 171RT.

Aeroil Burner Co., Inc., West New York, N. J.
CHICAGO SAN FRANCISCO DALLAS

Portable Truck Buckets for Trash and Rubbish

In a new booklet issued by the Dempster Brothers, Inc., Knoxville, Tenn., this company presents a series of trash and rubbish buckets useful in municipal sanitary operations. These buckets vary in size from 2 to 8 cubic yards. They are handled by all standard Dempster Dumpster hoisting units and equipped with convenient methods of loading and unloading. They are electric arc-welded to form one complete unit.

For full information on these trash and rubbish buckets write to Dempster Brothers, Inc., Knoxville, Tenn., and ask for catalog 2-42.

Eagle Signal Corp. Closes Boston Office

The executive sales office of the Eagle Signal Corp. fromerly located at 1062 Park Square Bldg., Boston, Mass., was closed on April 30, 1942 for the duration of the war. Matthew Porosky, now Vice-Pres. and Gen. Mgr. will be located at the main office of the Company, Moline, Ill. New England Municipal Sales interests will continue to be handled by W. M. Ickrath, Springfield, Mass., and by R. W. LeBaron, Inc., 452 Massachusetts Ave., Arlington, Mass.

Exact Identification with New Camera

In assisting municipalities and defense organizations in identifying their employees, the National Photo-Identity Corp., Suite 809, 600 S. Michigan Ave., Chicago, Ill., has presented the new Monroe Duo Camera.

This new camera is equipped with two photographic lenses. One takes the photograph of the individual, while the other simultaneously photographs identifying information such as name, signature, physical description, and other required data. Both the information and the portrait are projected on one film thus eliminating patching and double exposure. Duplicates can be printed inexpensively from a master negative.

At the
A. W. W. A.
Wartime
Conference
Chicago,

we shall be glad to
talk with you about

BUILDERS
WATER AND SEWAGE PLANT
Instruments

already installed—
or under consideration for the future.

BUILDERS-PROVIDENCE, INC.
Division of Builders Iron Foundry
9 Codding Street Providence, R. I.

TYPE C SINGLE LID
METER BOX COVERS

These covers are made right to give a lifetime of satisfactory service to the water utility and real convenience to the meter reader. A variety of sizes, heights and weights for all conditions.

All Ford Meter Box Covers are equipped with the Lifter Worm Lock with Forged Everdur Bolt,

Ask for a catalog listing Type C Covers and all of our other products.

FORD METER BOX CO.,
SETTING AND TESTING EQUIPMENT FOR WATER METERS
WABASH, INDIANA

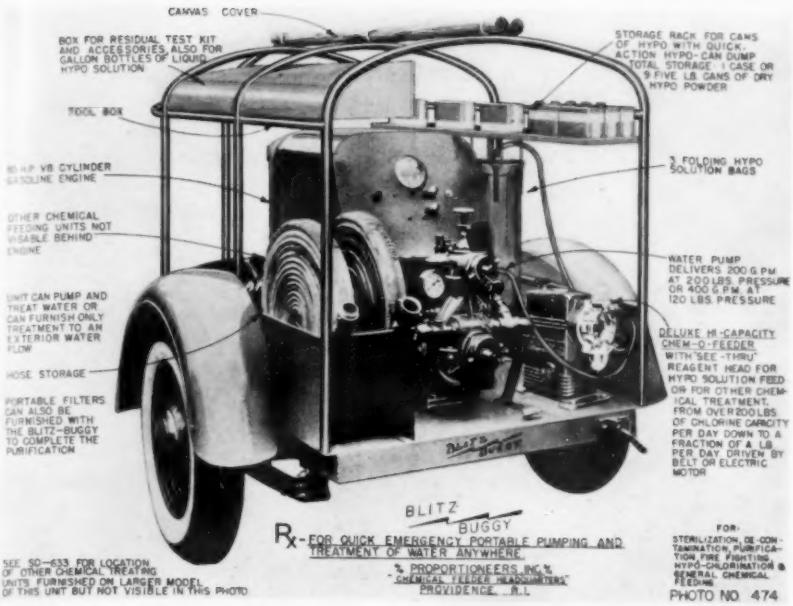
Part of the Hammond, Indiana Motorcycle Squad. Left to right — Officers Joseph Rosek, Stanley Szot, Harvey Hill, Perry Orr and Herman Blockland, mechanic.

ON HUNDREDS of home fronts—as with the nation's far-flung mechanized forces — Harley-Davidson Motorcycles are stepping up the effectiveness of "America's Finest." Their speed, power and rugged dependability give hard-pressed police departments just what they need to meet today's extra traffic-control demands created by countless trucks, buses and passenger cars carrying materials and essential workers to vital war industries.

Phone your Harley-Davidson dealer!

HARLEY-DAVIDSON MOTOR COMPANY, *Milwaukee, Wisconsin*

HARLEY-DAVIDSON
MOTORCYCLES
ON AMERICA'S FRONT LINES OF ACTION


CANVAS COVER
BOX FOR RESIDUAL TEST KIT AND ACCESSORIES, ALSO FOR GALLON BOTTLES OF LIQUID HYPO SOLUTION
TOOL BOX
10 H.P. V8 CYLINDER GASOLINE ENGINE
OTHER CHEMICAL FEEDING UNITS NOT VISABLE BEHIND ENGINE
UNIT CAN PUMP AND TREAT WATER OR CAN FURNISH ONLY TREATMENT TO AN EXTERIOR WATER FLOW
HOSE STORAGE
PORTABLE FILTERS CAN ALSO BE FURNISHED WITH THE BLITZ-BUGGY TO COMPLETE THE PURIFICATION
STORAGE RACK FOR CANS OF HYPO WITH QUICK-ACTION HYPO-CAN DUMP TOTAL STORAGE 1 CASE OR 9 FIVE LB CANS OF DRY HYPO POWDER
3 FOLDING HYPO SOLUTION BAGS
WATER PUMP DELIVERS 200 G.P.M. AT 200 LBS. PRESSURE OR 400 G.P.M. AT 120 LBS. PRESSURE
DELUXE HI-CAPACITY CHEM-O-FEEDER WITH "SEE-THRU" REAGENT HEAD FOR HYPO SOLUTION FEED OR FOR OTHER CHEMICAL TREATMENT, FROM OVER 200 LBS. OF CHLORINE CAPACITY PER DAY DOWN TO A FRACTION OF A LB. PER DAY, DRIVEN BY BELT OR ELECTRIC MOTOR
BLITZ BUGGY
Rx FOR QUICK EMERGENCY PORTABLE PUMPING AND TREATMENT OF WATER ANYWHERE
FOR: STERILIZATION, DE-CONTAMINATION, PURIFICATION, FIRE FIGHTING, HYPO-CHLORINATION & GENERAL CHEMICAL FEEDING
SEE SO-633 FOR LOCATION OF OTHER CHEMICAL TREATING UNITS FURNISHED ON LARGER MODEL OF THIS UNIT BUT NOT VISIBLE IN THIS PHOTO
PROPORTIONEERS INC. "CHEMICAL FEEDER HEADQUARTERS" PROVIDENCE, R.I.
PHOTO NO. 474

Emergency Chlorination with "Blitz Buggies"

In answer to the demand for a mobile chlorinating unit to protect water-supply systems against wartime pollution, Proportioneers, Inc., 99 Codding St., Providence, R. I., have constructed a number of small complete mobile chlorinating units.

One of these is mounted on a trailer and contains pumping, purification, fire fighting, and decontamination units with the necessary accessory equipment. It is built so that the unit can be quickly dismounted and left on location while the trailer proceeds to the next danger point. Laboratory equipment includes small chloro-o-feeders mounted on wood frames in such a manner that they may be readily transported by trucks or other mobile equipment.

The new emergency Sterilization Bulletin published by Proportioneers gives a complete story of this equipment.

Heath Named Sales Mgr. for Barber Asphalt

Ralph C. Heath has been named General Sales Manager for the Barber Asphalt Corp., Barber, N. J., according to a statement made by T. Rieber, Pres. He succeeds C. W. Priesing, Director of Sales, who has resigned.

Ralph Heath has been associated with the corporation for 23 years in various sales executive positions and he has a wide circle of loyal friends throughout the road-building field. His headquarters will be in the general offices of the corporation.

Traffic Signs To Meet the Emergency

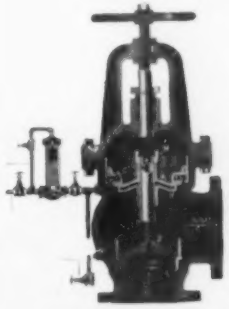
In meeting the emergency created by the shortage of steel, the Star-Lite Co., 312 E. Market St., Indianapolis, Ind., is presenting the "Reflecto-Chain" for use on traffic signs.

These chains may be shaped into any style or size of letter, figure, or symbol and mounted on any type of wood sign by means of special screws or nails. If required, they can be installed to function with complete invisibility from overhead without impairing their horizontal effectiveness. Old or new signs can be quickly and inexpensively converted into reflector signs by the use of these chains.

Triple-Acting Non-Return Valve

This valve will automatically cut in a boiler whenever its pressure equals line-header pressure; it will isolate a boiler automatically whenever its pressure, from any cause, is lower than line-header pressure; and it will prevent steam flow from the boiler in event of sudden drop of line-header pressure below the boiler pressure, by means of differential shot pilot valve functioning.

Write for specifications.



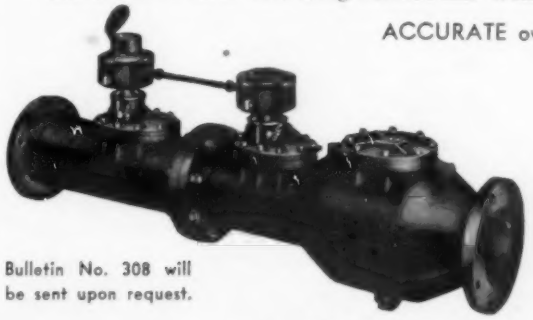
Furnished in angle, globe and elbow patterns, sizes 2½" to 12"; also available in larger sizes, as well as in the Cross pattern.

GOLDEN-ANDERSON VALVE SPECIALTY CO.
Fulton Building Pittsburgh, Pa.

SPARLING
WATER MAIN LINE METERS

IN GOVERNMENT SERVICE - - -

Several hundred Sparling Main-Line Meters have been installed at government camps, fortifications, airfields—from Iceland to Cuba and back to Alaska! Many totalize only; others have indicating and recording equipment; some control chemical feeding, etc. A number of these meters are of the Compound type, shown here—a 30"-8" now being installed near Washington, D. C.



ACCURATE over Wide Flow Range

The 30"-8" Compound is as accurate at 100 gallons per minute as at 12,000 and over, with no sharp cutover point. Overall pressure drop at full rated capacity is less than two pounds per square inch.

Bulletin No. 308 will be sent upon request.

P. W. SPARLING

LOS ANGELES—Box 3277, Terminal Annex
CHICAGO—3104 S. Michigan Avenue
622 Broadway—CINCINNATI
101 Park Avenue—NEW YORK

In 1939 the War Department Purchased one Patrol Sweeper for Flying Field service. Seven more were put in service in 1940. Now hundreds of A-W Patrols have been ordered for U. S. Flying Fields, near and far.

SERVICE ON THE FLYING FRONT

THE
Austin-Western
PATROL SWEEPER

A-W PATROL SWEEPERS

● Keeping hangers, approaches and runways clean for America's fast growing air fleet has become the principal job of the A-W Patrol Sweeper. Its ability to thoroughly clean all types of surfaces . . . to maneuver in tight corners . . . while traveling around 300 to 500 feet a minute, makes the A-W Patrol the ideal sweeper for this exacting service; just as these distinctive characteristics make it an outstanding success in meeting the varied street sweeping problems of large and small cities.

The A-W Patrol has achieved its position of leadership on the flying front and on city streets because it is compact, fast and dependable. It digs out and picks up all manner of debris—including sand, leaves, broken glass, nails, bolts and other hazard-creating substances. While all-out war requirements limit production of A-W Patrols for civilian use at this time, keep this outstanding sweeper in mind as the economical answer to your post-war clean-up problem.

THE AUSTIN-WESTERN ROAD MACHINERY CO., Aurora, Illinois

MOTOR GRADERS • BLADE GRADERS • ELEVATING GRADERS • SCRAPERS • CRUSHING AND SCREENING PLANTS • ROLLERS
ROLL-A-PLANES • MOTOR SWEEPERS • SHOVELS AND CRANES • SCARIFIERS • DUMP CARS • TRAIL CARS

A police officer tests a masonry wall by firing at it with a revolver

Temporary Masonry for Bomb Protection

Bomb splinters or the bullets of hidden saboteurs may be kept from electric transformers and other vital equipment or buildings by walls of hollow concrete masonry units with sand-filled cores, according to the Portland Cement Assn., Chicago, Ill. This method of protection is effective and has the advantage of conserving cloth sacks commonly used for sand bags, of which there is now a critical shortage. The concrete masonry units also have a high salvage value for other uses. Such walls, when erected without mortar, are easily dismantled after their need has passed.

Requirements for protective installations based on actual war experience in England are as follows:

Walls should be fire-resistant and should:

—be capable of stopping either bomb splinters or high-velocity rifle bullets

—have adequate stability

—be able to resist severe weather exposure

—require minimum upkeep

—be quickly and economically built with local materials and unskilled labor

The English experience has shown that concrete masonry walls with sand-filled cores meet all these requirements. They have to a considerable extent replaced the sand bag walls which were widely used in England at the beginning of the war because it was found that the cloth sacks rotted within a few months causing the complete collapse of many of the barriers.

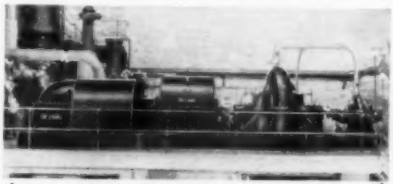
The erection of the masonry walls, either with or without mortar, requires concrete footings to insure stability. These footings may be of plain concrete, at least 8 in. deep and 16 to 20 in. wide. Where the underlying soil is fairly stable the footings may be built of 12-in. concrete masonry units with the cores filled with a cement mortar made with one part of portland cement and three to four parts of sand. The 12-in. units may be used without mortar above grade for a wall as high as 14 ft., which would require 21 courses. Pilaster construction is desirable at corners and at intervals for any wall 30 ft. or more in length.

This type of construction has received serious consideration because it requires no critical building material and offers an easier, more permanent, and more economical method of protection than is possible with cloth bags which have other more vital war uses.

Full information on this type of protection may be obtained by writing the Portland Cement Assn., 33 W. Grand Ave., Chicago, Ill., Dept. 5-4.

New Book on Testing Water Meters

The Ford Meter Box Co., Wabash, Ind., recently published a 40-page booklet entitled "Testing Water Meters—Why, When, How." This booklet discusses many of the problems that concern waterworks superintendents in regard to water meters. It points out the value of non-registered water and what maintenance of meters can mean in dollars and cents. It also shows typical tester installations.



Geared pressure-stage turbine driving water works pump: 80 m.g.d. against 187-ft. head, using steam at 175 psi. and 533°F. This unit developed a duty of 222.8 million footpounds per 1,000 lb. of steam, as corrected to contract conditions.

Turbine Drive for Pumps is a "Natural"

THE speed of steam turbine driven pumps can readily be controlled, either automatically or manually, to supply just the desired head and flow, thereby avoiding the great waste of power incurred in throttling motor-driven pumps to meet head and flow requirements.

They are free from the transmission charges, losses and interruptions of service inseparable from motor drives.

State conditions and ask for Publication T-3525.

De Laval Steam Turbine Co.
TRENTON, NEW JERSEY

Visit Our Booths Nos. 16 and 17 Stevens Hotel, Chicago during A. W. W. A. Convention

1879-ROSS-1879
AUTOMATIC VALVES

ALTITUDE VALVES
for
Control of elevation and heads into and out of tanks, basins and reservoirs.

1. Single acting.
2. Double acting.
3. Combination assembly for three or more automatic operations.

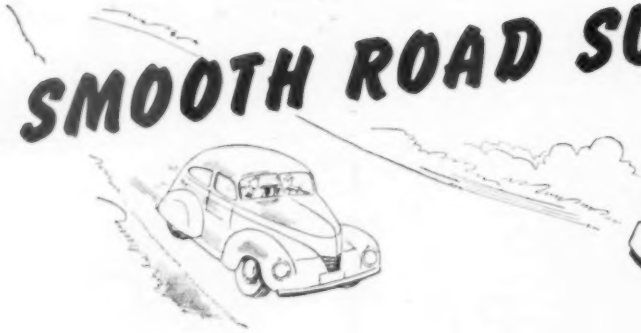
REDUCING VALVES
for
Maintaining desired discharge pressure regardless of change in rate of flow.

1. Pressure reduction only.
2. Pressure reducing and reverse flow.
3. Combination assemblies —for control of pressure at inlet and outlet of valve.

SURGE-RELIEF VALVE
for
Maintaining safe operating pressures for conduits, distribution and pump discharge.

Ross Valve Mfg. Co.
INCORPORATED
P. O. Box 596 Troy, N. Y.

SMOOTH ROAD SURFACES SAVE...



SURFACE CONSOLIDATION SAVES BLADING UP TO 90%

"We blade the stabilized surfaces once, in place of ten or twelve bladings on an untreated road," says one prominent engineer, and his experience is general with those who consolidate road surfaces. Even with continuous blading, maintenance of unbound surfaces is difficult. Save your blades, tires, gasoline by binding loose materials so they require little blading.

PROVIDES FIRM, RESILIENT DRIVING SURFACES

Calcium chloride provides the moisture to keep roads dustless and gives binder soil the cohesive properties which bind aggregates together to produce firm, resilient driving surfaces. So, you not only save critical items such as tires, blades and trucks, but you also prevent the waste of surface material. Under new government regulations, few new roads may be built. Save the ones you now have with calcium chloride maintenance.

Send the coupon today for booklet describing surface consolidation materials, methods and results.

CALCIUM CHLORIDE ASSOCIATION
4145 Penobscot Bldg. Detroit, Michigan

Tires wear up to one-half longer on consolidated road surfaces than they do on loose gravel. This prolongs life of taxpayers' tires as well as those on highway equipment.

Critical war needs for steel demand fullest service from every blade. Due to less frequent need for blading, consolidated surfaces enable blades to maintain ten times the mileage they would maintain on loose gravel.

The minimum maintenance needs of consolidated roads conserve gasoline and the trucks that burn it. Road users gain increased gas mileage (up to 26%) and oil mileage (up to 83%), according to a recent mail carrier study, since cars operate more economically on compact surfaces.

CALCIUM CHLORIDE
for **SURFACE CONSOLIDATION**

CALCIUM CHLORIDE ASSOCIATION
4145 Penobscot Bldg., Detroit, Mich.
Please send me new book on Road Surface Consolidation.

Name _____
Address _____
City _____ State _____

Austin-Western Tandem Roller owned by Jefferson County Highway Department, Jefferson, Wisc., laying a black top surface

Rollers Described by Austin-Western

In a new catalog recently published by The Austin-Western Road Machinery Co., Aurora, Ill., rollers manufactured by this company are completely described giving not only mechanical features but operating characteristics as well. Rollers are power-furnished both by diesel and gasoline and have many features strengthening their construction not only in the frame, but also in the operating machinery. Placing of the engines has been done to facilitate proper balancing and to eliminate vibration.

H. C. Erwin Dies

Howell Cobb Erwin, Southern Sales Mgr. for the Hersey Mfg. Co., South Boston, Mass., died at his home at Atlanta on April 22, at the age of 62.

Mr. Erwin has been southeastern representative of the Hersey Mfg. Co. for the past 37 years. He and his family are well known throughout the South, his old family homestead being for many years a land-mark of the city.

He is survived by his wife and daughter, two grandchildren, and a brother residing in Dallas, Texas.

The Jeffrey Mfg. Co. Awarded Navy "E"

In an impressive program on April 12, the Navy Department represented by Captain Robert Henderson presented the Naval "E," the traditional symbol for excellence, to The Jeffrey Mfg. Co., 970-99 No. Fourth St., Columbus, Ohio. Robert W. Gillispie, President of the company, accepted the award.

Only recently has the naval "E" been awarded to others than personnel of the Navy. It now represents recognition of outstanding performance in the production of Navy materiel. In determining appropriateness for this award the Navy Department considers the status of the production of the company as compared with production schedules, the amount of ingenuity shown in overcoming obstacles, the degree of corporate reliance, the willingness to assume new and difficult tasks, and the evidence of desire toward genuine and effective cooperation.

The Navy "E" has been a traditional Navy symbol for excellence since 1906.

CARSON CLAMPS
And Mechanical Joints
STOP LEAKS

Glands and bolts made of corrosion-resistant charcoal (pearlitic) cast iron—last as long as cast iron pipe. Bell clamps and mechanical-joint. Glands accommodate variations in pipe dimensions, insure uniform compression of rubber gasket.

WRITE FOR ILLUSTRATED LITERATURE

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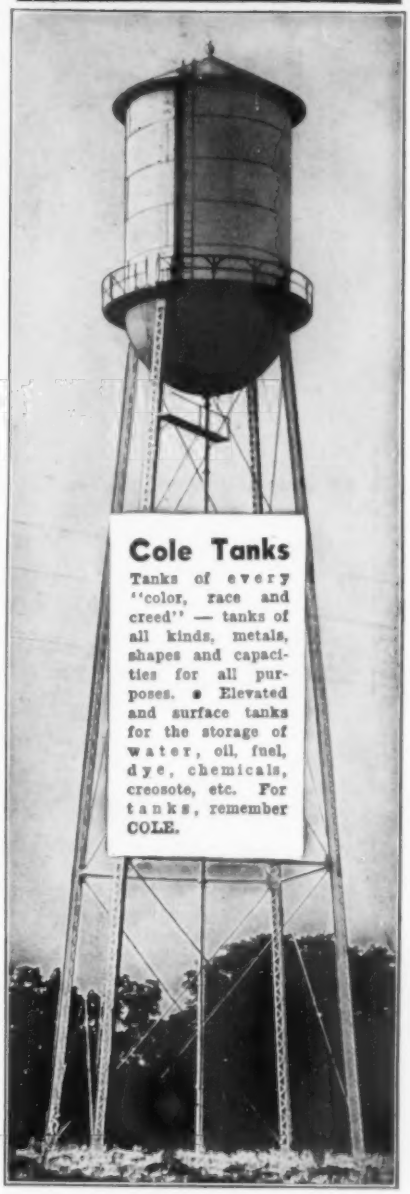

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Tanks of every "color, race and creed" — tanks of all kinds, metals, shapes and capacities for all purposes. ● Elevated and surface tanks for the storage of water, oil, fuel, dye, chemicals, creosote, etc. For tanks, remember COLE.

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Write for "Tank Talk"—No. 15A

R.D. COLE MFG. CO.
Established in 1854
NEWNAN · · · GEORGIA

Frau Holtz receives an American guest

[in spite of the headsman's axe!]

Until Hans died for the glory of the Fuehrer, somewhere on the Russian front two months ago, Frau Holtz knew very little of America... and what little she knew was wrong. Herr Goebbels saw to that.

But when her last son went the way of his two brothers, there were some things she *had* to know. One night she turned a dial—and brought an American visitor into her home. She turned down his voice to the barest whisper, but she listened all the same. And there came to light within her a dawning realization — a bitter sense of betrayal.

• • •

Tonight in Germany, in France, in Czechoslovakia, a thousand Frau Holtzes will listen to the *verboten* voice of RCA-NBC International Shortwave Stations WNBI and WRCA — even though whip and bludgeon and axe await them in the dungeons of the Gestapo, if they are discovered.

They hear—at long last—the forbidden truth. Truth hurled from RCA transmitters across the sea — the truth about America — the truth about the world—the truth no tyranny can suppress.

• • •

Of all the uses to which RCA Radio Equipment has been put in this war, we are not least proud of this use: that RCA Equipment today is not only helping to overwhelm the physical might of our enemies in war, but is helping, too, to prepare the minds of the world for the just and lasting peace that will come when the war is over. Radio is opening Frau Holtz's eyes to the truth that her enemies are not here, but at home.

BUY U.S. WAR BONDS

RCA **Police Radio Systems**
RCA Manufacturing Co., Inc., Camden, N. J.

When you write for that catalog, kindly mention THE AMERICAN CITY.

The new J. D. Adams bulldozer with single cable control

Adams Co. Announces New Bulldozer

The J. D. Adams Co. has announced the addition of a bulldozer to its line of road-building and earth-moving equipment. The new bulldozer, known as the No. 181, has been specifically designed for use on TD-18 wide tread TracTracTors. It fills a particular need for municipalities in airport construction and snow-removal work.

It is single-cable controlled and is engineered to provide the even weight distribution necessary for good balance and maneuverability. The moldboard is designed to keep earth rolling smoothly at all speeds and is wide and higher than most moldboards. A pusher attachment for use with scrapers is available.

A convenient side-mounted control permits the operator to sit in a natural position facing the blade. Operation is by means of an Adams No. 20 Power Control Unit (single or double drum) or any other standard hoist attached to the power take-off of the tractor. For complete information and specifications, write J. D. Adams Company, Indianapolis, Ind., requesting form 4121.

Asphalt Repairs for Bombed Streets

Construction specifications CP-1 have just been issued by the Asphalt Institute entitled "Stock-Pile Asphalt Paving Mixtures for Making Quick Repairs of Bombed Surfaces."

According to these specifications the mix may be prepared by either stationary plant mixing, by a traveling plant, or by blade mixing. MC-2 cut-back asphalt is called for at a rate of 4 to 6 per cent.

Specifications state that the mixture should be placed in compact layers of not to exceed 3 inches for a total depth of not over 9 inches. Bomb craters should be filled in with other available material.

Single copies may be obtained without charge by writing to the Asphalt Institute, 801 Second Ave., New York City.

W. S. Scruggs Elected Vice-Pres., St. Paul Hydraulic Hoist Co.

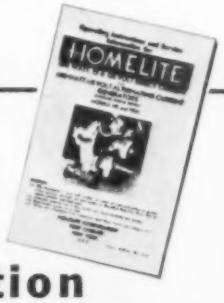
G. A. Bassett, President, St. Paul Hydraulic Hoist Co., Minneapolis, Minn., announces that W. S. Scruggs has been elected a Vice-President.

Homelite Portable Pumps and Generators are veterans of many emergencies—floods, hurricanes, fires, serious power failures and several others. Wherever emergency floodlighting or instant pumping or quick repairs have been necessary, Homelites have been right on the job. Now these readily portable, self-operating units are ready for a greater emergency — *WAR*. Thousands of water works and public works departments have them on hand ready for any blitz.

A Homelite Generator (above) and a Homelite Pump are easily carried by one man—transportation difficulties are eliminated. Action is insured.

If bombs blow up water mains, Homelite Pumps can be put right on the job. They'll have the craters pumped out in no time so that repair crews can do their work with a minimum of delay. And if it comes at night, Homelite Generators will give men the floodlighting they need for speed. Also for fighting night fires caused by bombings; or for power standby at telephone or signal stations; illuminating hospitals, Red Cross stations, and defense centers, Homelite Generators will be at their posts ready to do their duty.

Homelite Pumps and Generators can take it. Those that have them know they are built to stand up without failure under the most severe operating conditions.



KEEP 'EM FIT FOR THE JOB

A few simple precautions such as keeping spark plugs clean, carbon out of the cylinders, the right mixture of oil in the gasoline, etc. will keep your Homelites in the pink of condition. Send for our service bulletins that show how to get the most out of your units. Specify model and serial numbers of the Homelites you now have.

Homelite Corporation

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IMAGINEERING: GETTING OUT OF THE GROOVE

THESE FOUR YOUNG WOMEN, so earnestly mastering the art of torch-welding aluminum, suggest that someone, somewhere, has checked out of the groove and started some practical Imagineering.

THEY PROVE what we've been saying for years: Alcoa Aluminum is easy to fabricate. The man who started the school where these girls are learning, and graduating to war jobs, simply had imagination enough to believe that

easy really means *easy*. Then he did something about it!

IMAGINEERING is letting your imagination soar and then engineering it down to earth. It is ingenuity in modern dress.

IT IS THE THING that has enabled the aluminum industry to keep on top of a plane schedule, increased tremendously in numbers, but also calling for almost twice as much aluminum per plane as the average plane needed two years ago.

IT IS WHAT EVERY ONE OF YOU are doing on your war job. Simplification, standardization, training. New methods, new materials, new records.

THIS WAR is showing Americans what they really can do if they try.

LET'S MAKE a vow to carry this same spirit over into postwar America. We'll all have the skills, the habit of work, the thrill of doing. There will be lots of aluminum to make into better products than peacetime America ever knew. It will be a great day for Imagineers.

Aluminum Company of America, 2172 Gulf Building, Pittsburgh, Pennsylvania.

★ SO MUCH SO SOON ★

ALCOA ALUMINUM

ALCOA ALUMINUM

New victory meter manufactured by Pittsburgh Equitable Meter Co. uses only 30 per cent of the bronze normally required for a meter of this type

New Victory Meter by Pittsburgh-National

The Pittsburgh Equitable Meter Co. has announced the development of the Empire Victory Water Meter. This meter is designed with a cast-iron outer case and a molded glass register box in order to conserve vitally needed brass for the war effort. The manufacturer states that about 70 per cent of the bronze normally used in a domestic sized meter has been eliminated without sacrificing any of the quality of construction details.

The cast-iron outer casing of the meter is especially treated, coated, and lined to prevent the formation of rust. Machined surfaces are chemically treated to inhibit corrosion. The casting surfaces are protected with a coating of "Resistin," which is a special synthetic resin enamel finish, permanently bonded to the metal. Lead alloy liners are provided at all points of contact between the measuring chamber and the outer shell.

Of especial interest is the molded glass register box. This is a single-piece, strong, molded glass unit which fits snugly over the register and is retained against a fibre gasket gasket by two screws. The manufacturer states that the glass used is thick and strong and that it will withstand considerable abuse. The design permits this glass unit to serve both as a register box and as a lid.

The Victory Meter utilizes the same oscillating piston principle measurement characteristic of all Empire meters. The measuring chamber is of the snap joint type, within which operated a balanced piston having a centrally located web. The design requires the use of only three interior bronze castings. A four-wheel, oil-enclosed gear train is provided—the top half of the measuring chamber acting as the gear train bottom plate. The design eliminates all need for interior screws and makes possible the assembly of all working parts as a complete unit before installation in the meter case.

A new bulletin describing the Empire Victory Meter has been published, and copies may be obtained by writing to the Pittsburgh Equitable Meter Co., 400 N. Lexington Ave., Pittsburgh, Pa.

Kelley Named President of Austin-Western Co.

McClure Kelley

McClure Kelley has has been elected President of the ern Road Ma- Austin - Westchinery Co., Aurora, Ill., according to a recent announcement by the Board of Directors. Mr. Kelley became associated with the company in 1929 as Assistant Treasurer, became Treasurer in 1931, and Vice - President in 1940. He will assume his office on August 1.

Samuel F. Beatty

He succeeds Samuel F. Beatty who will become Chairman of the Executive Committee. Mr. Beatty has been associated with the company for the past 43 years, the last 15 years as President.

Concrete Grates for Catch Basins

To conserve critical materials, the Nelson Concrete Culvert Co., Champlain, Ill., has designed a concrete catch-basin grate using only concrete and about 2½ pounds of steel reinforcing.

The use of such a grate is restricted to areas where it will not be subjected to vehicular traffic, such as off-the-road and field drainage. It has been approved by the Division of Highways of the Illinois State Dept. of Public Works and Buildings and has been adopted by a number of Illinois counties.

The grate shown in the illustration costs about $7.50 as compared with approximately $13 for the grate of cast iron formerly used.

RUSTOP saves your tanks from costly corrosion

RUSTOP, *the cathodic system of corrosion prevention, reduces maintenance costs and prolongs the life of your tanks indefinitely.*

Visit our booth at the AWWA Convention in Chicago, June 21-25.

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The American City

BETWEEN MIDNIGHT AND MORNING

BY SIR OWEN SEAMAN

Ye that have faith to look with fearless eyes
Beyond the tragedy of a world at strife,
And trust that out of night and death shall rise
The dawn of ampler life;
Rejoice, whatever anguish rend your heart,
That God has given you, for a priceless dower,
To live in these great times and have your part
In Freedom's crowning hour;
That you may tell your sons who see the light
High in the heavens—their heritage to take—
"I saw the powers of Darkness put to flight,
I saw the Morning break."

Read the War Message
from the
United States Treasury Department on page 26